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# The Political Economy of Corporate Control and Labor Rents\*

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## Abstract

In a democracy, a political majority can influence both the corporate governance structure and the return to human and financial capital. We argue that when financial wealth is sufficiently concentrated, there is political support for high labor rents and a strong governance role for banks or large investors. The model is consistent with the "great reversal" phenomenon in the first half of the 20th century. We offer evidence that in several financially developed countries a financially weakened middle class became concerned about labor income risk associated with free markets and supported a more corporatist financial system.

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# I. Introduction

We study the question of how different corporate governance systems may come to exist. Different from much of the literature, our analysis is not normative ("which system is superior?"), but positive ("which system can emerge under what conditions?"). 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 in individual countries has evolved over time. While in 1913 financial systems were relatively similar across many countries,<sup>1</sup> in subsequent decades several European countries (and Japan) 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 the tradition of classical political economy, we take the view that financial and labor market structures are shaped by political decisions, which in turn are influenced by economic interests. In particular, corporate governance affects voters because it affects corporate decisions, which drive the creation and distribution of national income. We predict a clustering of governance and labor laws, and analyze their implications for corporate behavior. The model also allows to make predictions on how shocks to the wealth distribution in a country may induce structural changes in financial and labor markets.

Our starting insight is that human capital risk cannot be diversified, in contrast to most financial risks.<sup>2</sup> This market incompleteness induces voters to influence politically not just stakeholder claims, but also their riskiness. When an efficient comprehensive economy-wide redistribution of income is impossible, limiting labor income risk requires influence on decentralized corporate decision making.<sup>3</sup> Although voters cannot influence corporate choices

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<sup>1</sup>Rajan and Zingales (2003a) show that in 1913 civil law countries such as France, Belgium and Austria were more financially developed than the US or other common-law countries.

<sup>2</sup>For comprehensive discussions of risk-sharing mechanisms with missing markets, see Shiller (1998) and Allen and Gale (2000).

<sup>3</sup>At the corporate level, Aoki (1988) argues that in a consensual corporate governance structure, labor risk may be reduced by deliberate actions such as corporate diversification.

directly (outside the state-owned sector), they may confer control rights to those investors whose interests are best aligned with their own, whether dispersed equityholders, banks, large shareholders, or the state. Corporate strategy affects individual utility differentially depending on the composition of the individual's wealth. Equity represents best the interests of agents for whom returns to financial capital are more important than those to human capital, as it naturally chooses higher risk, higher return investments. On the other hand, banks hold claims which are concave in profitability, and therefore are natural allies of stakeholders who wish 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.<sup>4</sup> 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 with higher growth potential. The model has a number of empirical implications for market development, corporate 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 capitalized 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 reduces the stake of the median class in financial returns may explain the "great reversal"

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This may also reduce the required compensation for employees investing in firm specific human capital (Hermalin and Katz, 2000).

<sup>4</sup>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.

phenomenon around the Great Depression (Rajan and Zingales, 2003a).

To make this point, we document 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 that moved subsequently away from 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. This evidence is highly suggestive and, interestingly, vindicates an observation made by Keynes at the time: "Throughout the continent the pre-war savings of the middle class, so far as they were invested in bonds, mortgages, or bank deposits, have been largely or entirely wiped out. Nor can it be doubted that this experience must modify social psychology towards the practice of saving and investment" (Keynes, 1923, p. 67).

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.

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 Europe and the US.<sup>5</sup> Similarly, in theory firms should be free to choose their own fi-

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<sup>5</sup>Such structures may be inefficient as they can decrease investment or increase unem-

nancing and governance structure. Yet, in practice these choices are strongly influenced by the regulatory framework. For instance, even if firms seek to avoid bank borrowing to retain equity control, legislation can create market conditions that impede private equity, venture capital or similar financial instruments and thus force firms to deal with banks to access investment financing. We discuss various such mechanisms in Section 3.3 below.

The formal literature on the political determinants of financial structure is still fairly novel.<sup>6</sup> Pagano and Volpin (2005) show how poor minority investor protection may be the result of 'corporatist' alliance between stakeholders and large investors, who seek to protect 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 development, and provide evidence that autocratic societies restrict 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 paper is organized as follows. Section 2 presents the basic model, where voters choose between bank and equity dominance. Here equity rights are supposed to be held equally by all shareholders, with no conflicts of interest among them. In Section 3 we consider the choice over granting control benefits to large shareholders, and discuss issues of social insurance, decentralized governance decisions, and labor co-determination. Section 4 discusses empirical evidence related to our theory, in particular with respect to the period of the Great Reversals. Section 5 concludes.

## II. The Basic Model

In our base model, we assume that there is a continuum of individuals and firms, both indexed by  $i \in [0, 1]$  (where the interval has the Lebesgue measure). 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  $h(R_i)$  represents

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ployment. Yet this will not affect the median voter, if she is a "labor insider".

<sup>6</sup>See Pagano and Volpin (2001) for an early survey.

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.

Next to his human capital, each individual is endowed with financial wealth  $F_i$ . Agents maximize the expected utility of total individual wealth  $W_i = F_i + h(R_i)$ . Utility functions are identical across agents and given by

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

where  $A$  is a measure of risk aversion.<sup>7</sup>

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  $R < R_0$ . 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 trade-off in our mean-variance framework in a simple form, we assume

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

where  $\bar{R}_\sigma$  denotes the expected value of returns under strategy  $\sigma$ . 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.<sup>8</sup> If all firms choose the same investment strategy  $\sigma$ , aggregate corporate returns in the economy are therefore  $\bar{R}_\sigma$ , and aggregate financial profits (which includes returns to bank loans and bank equity)  $F = \bar{R}_\sigma - \int h(R)dG_\sigma(R)$  are non-stochastic.

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<sup>7</sup>Note the slight abuse of notation in (1). For brevity, we use CAPM-type utilities and do not define utility over wealth levels.

<sup>8</sup>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.

Financial markets are efficient and satisfy the CAPM assumptions, so all individuals choose to hold the market portfolio. 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  $\alpha_i$  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.  $\alpha_i$  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.<sup>9</sup> 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 in all circumstances. 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.<sup>10</sup> 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 investor class is dominant, equity holders or banks.<sup>11</sup>

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

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<sup>9</sup>We endogenize capital structure in a model of corporate risk taking in Perotti and von Thadden (2005).

<sup>10</sup>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.

<sup>11</sup>In Perotti-von Thadden (2004) we show in an extension how one can incorporate an other important stakeholder, labor, into the analysis.



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 given by a constant nominal level that is senior to all other claims:

$$h(R_i) = \min(H, R_i), \quad (4)$$

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 that is needed for our argument. Because of risk aversion, the functional form (4), which grants highest seniority to labor claims, is actually efficient in most cases of our model.<sup>12</sup>

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,<sup>13</sup> we simply posit that banks have priority over bond investors. Hence, a bank loan of face value  $B$  gives the bank a claim of

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

While internally consistent, assumption (4) is a simplification. In practice, while earned wages have priority over debt in bankruptcy, many labor rents, such as some pension claims, are lost in default. Yet the exact division of claims among debt and labor is not essential for our argument; what matters is that both claims are more exposed to the downside than the upside of profits.

## A. Corporate strategy

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<sup>12</sup>Since all agents are exposed to labor income risk while financial risk is diversifiable, they all prefer the highest seniority status for labor claims, everything else fixed. See Perotti and von Thadden (2004) for a more detailed analysis.

<sup>13</sup>See, e.g., Welch (1997) and the evidence cited there.

Given the political decision about investor 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, which 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,

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

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  $\Delta$  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.

## B. Preferences over labor rents and corporate risk

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

$$E(h(R_i)) = \int_0^H R_i dG_\sigma(R_i) + H[1 - G_\sigma(H)].$$

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

$$\begin{aligned} F &= \bar{R} - E(h(R)) \\ &= \int_0^\infty \max(R - H, 0) dG_\sigma(R). \end{aligned} \quad (6)$$

Total financial wealth is riskless, so we can now rewrite the expected utility for individual  $i$  as a function of her share in financial wealth  $\alpha_i$ , her labor rent  $H$ , and the corporate strategy  $\sigma$ :

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

Given these preferences, one can ask what decision  $(H, \sigma)$  agent  $i$  prefers. In doing so, it is easier to first study the preferred choice of  $H$  for a given strategy  $\sigma$ , and then extend the choice to  $\sigma$ . The former decision trades off the return to human capital and to the stake  $\alpha_i$  in financial returns.

**Proposition 1** *Suppose the firms' investment policy  $\sigma$  is fixed. Then, if  $\alpha_i > 1$ , agent  $i$ 's most preferred labor rents are  $H_\sigma^*(\alpha_i) = 0$ . Otherwise, her utility is single-peaked in  $H$  and she most prefers labor rents given by*

$$\int_0^{H_\sigma^*} G_\sigma(R) dR = \frac{1 - \alpha_i}{A}. \quad (8)$$

**Proof:** We have

$$\begin{aligned} &\text{var}(\min(H, R)) \\ &= E[(\min(H, R))^2] - E[\min(H, R)]^2 \\ &= \int_0^H R^2 dG_\sigma(R) - \left( \int_0^H R dG_\sigma(R) \right)^2 - 2H(1 - G_\sigma(H)) \int_0^H R dG_\sigma(R) \\ &\quad + H^2 G_\sigma(H)(1 - G_\sigma(H)) \end{aligned} \quad (9)$$

Hence, agent  $i$ 's expected utility is, after inserting (9) into (7), partially integrating, and rearranging,

$$U(\alpha_i, H, \sigma) = \alpha_i \bar{R}_\sigma + (1 - \alpha_i) \left( H - \int_0^H G_\sigma(R) dR \right) \quad (10)$$

$$- A \left[ H \int_0^H G_\sigma(R) dR - \frac{1}{2} \left( \int_0^H G_\sigma(R) dR \right)^2 - \int_0^H R G_\sigma(R) dR \right]$$

Differentiating this yields

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

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

The value  $H_\sigma^*(\alpha_i)$  is the agent's preferred choice of  $H$  given  $\sigma$ . This choice has some interesting features. If the voter has a financial stake  $\alpha_i$  less than the average financial holdings (which equal 1), then there is an interior solution. In this case, the optimal choice  $H_\sigma^*$  will trade off a higher but riskier labor rent against a safer but lower financial return. As long as  $\alpha_i > 0$ , 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.<sup>14</sup> If the agent's financial wealth is higher than the average ( $\alpha_i \geq 1$ ), the optimal choice of  $H$  is  $H_\sigma^* = 0$ . Since it is more efficient to diversify, these (financially) richer agents prefer to receive all their 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  $\sigma$ , the preferred level of labor rents is decreasing in the agent's financial wealth. As the agent becomes more interested in capital returns, the opportunity cost of labor income increases.<sup>15</sup>

Furthermore, increasing risk-aversion in the economy tends to reduce desired labor rents (for fixed  $\sigma$ ), which may at first seem paradoxical. But

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<sup>14</sup>The ideal value of  $H$  is finite even if the median voter has no financial wealth ( $\alpha = 0$ ), 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.

<sup>15</sup>Government policy may affect financial holdings to generate such a "Thatcher effect": For a model which endogenize this political strategy, see Biais and Perotti (2002).

intuitively, higher risk-aversion lets agents prefer receiving income in the form of (diversified) financial returns.

Agent  $i$ 's desired choice of  $(H, \sigma)$  is now obtained by comparing the two alternative utility levels  $U(\alpha_i, H_s^*(\alpha_i), s)$  and  $U(\alpha_i, H_r^*(\alpha_i), r)$ . However, corporate strategies cannot be determined directly by politics, only governance structures can. The policy variable therefore is  $q = (H, c)$  where  $c \in \{c_E, c_B\}$  denotes equity, resp. bank control. When choosing  $H$ , voters recognize that the expected level of rents will depend on the riskiness of corporate profits, which they cannot control directly. Hence, when choosing investor dominance, they will prefer the party whose interests in corporate strategy are best aligned with their own.

**Proposition 2** *Voter  $i$  prefers bank dominance if*

$$U(\alpha_i, \min(H_0, H_s^*(\alpha_i)), s) > U(\alpha_i, H_r^*(\alpha_i), r) \quad (12)$$

*and equity dominance otherwise. If (12) holds and  $H_s^*(\alpha_i) \leq H_0$ , her preferred level of labor rents is  $H = H_s^*(\alpha_i)$ . If (12) holds and  $H_s^*(\alpha_i) > H_0$ , her preferred level is  $H = H_0(-\varepsilon)$ . If (12) does not hold, her preferred level is  $H = H_r^*$ .*

**Proof:** From Proposition 1 we know that the voter's preferences over  $H$ , given investment strategy  $\sigma$ , 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  $H_s^*(\alpha_i) \leq H_0$ , (12) therefore implies bank dominance. If  $H_s^*(\alpha_i) > H_0$ , the voter's maximum utility with  $\sigma = s$  is  $U(\alpha_i, H_0, s)$ , and thus (12) again provides the correct criterion for her choice.

The voter's choice in Proposition 2 reflects a trade-off between labor rents and corporate riskiness that depends on the voter's financial stake. If  $U(\alpha_i, H_r^*(\alpha_i), r) > U(\alpha_i, H_s^*(\alpha_i), s)$ , the decision is unambiguously in favor of higher financial returns, hence the riskier corporate strategy. If on the other hand,  $U(\alpha_i, H_r^*(\alpha_i), r) < U(\alpha_i, H_s^*(\alpha_i), s)$  and  $H_s^*(\alpha_i) < H_0$ , the decision is clearly in favor of less risk, at the expense of higher financial profits.

An interesting case occurs when  $U(\alpha_i, H_r^*(\alpha_i), r) < U(\alpha_i, H_s^*(\alpha_i), s)$  and  $H_s^*(\alpha_i) > H_0$ . In this case, the 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 labor rents no dominant investor would implement the desired corporate risk choice (since also banks prefer more risk). Hence, the voter must trade off a reduction in nominal labor rents (to provide banks incentives) against a decrease in their riskiness.

### C. The political determination of labor rents and corporate control

We now examine whether equityholders or banks will be granted a dominant position in political equilibrium. This decision is taken together with the choice of labor rents analyzed in Proposition 1. In the base model, equity dominance implies equal rights for all shareholders (where equity holdings optimally are dispersed for diversification reasons). In an extension we consider the choice over granting control benefits to large shareholders.

As discussed above, voters' utility is determined by the decision  $q = (H, c)$ . We model political equilibrium by the choice of the median voter. 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 affine in  $\alpha_i$ ,<sup>16</sup> the median voter will be pivotal and the Median-Voter Theorem holds in our case (see Perotti-von Thadden, 2004).

Before proceeding to the political choice, it is instructive to ask what choice would be "first-best". Clearly if it were possible to perfectly redistribute corporate returns, everybody would favor the dominant investor who generates the highest expected returns, which is equity. Yet, perfect redistribution is unrealistic and ruled out by our assumption of market incompleteness. A better benchmark is the classical Rawlsian decision when voters choose behind a "veil of ignorance", i.e., as if they did not know their relative wealth. In such an ex-ante choice people would take the expectation over  $\alpha$  of the expected utility  $U(\alpha, H, \sigma)$  in (7).  $U(\alpha, H, \sigma)$  is affine in  $\alpha$  and  $E\alpha = 1$  by construction, so Proposition 1 implies that the optimal Rawlsian decision is  $H = 0$  with equity dominance. Hence, in expectation - or at an ideal legislative stage - people would ideally want to minimize labor rents and distribute all returns through financial transfers which allow diversification.

Yet, once the  $\alpha$ 's are drawn things will be different, as the decision will now depend on the financial wealth distribution. We therefore must study how the median voter's utility depends on  $\alpha$ .

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<sup>16</sup>Utility has the form  $\alpha_i A(q) + B(q)$  where  $A$  and  $B$  are functions given in (7).

To simplify notation, denote the integral of  $G_\sigma$  by

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

Then, by Proposition 1, voter  $i$ 's preferred level of labor rents for a given risk choice is uniquely determined by

$$\Gamma_\sigma(H_\sigma^*(\alpha_i)) = \max\left(0, \frac{1 - \alpha_i}{A}\right). \quad (13)$$

**Lemma 2:** *If  $A\Gamma_s(H_0) \geq 1$ , the preferences of agents depend on  $\alpha$  as follows.*

- *If*

$$\int_0^{H_r^*(0)} RG_r(R) dR > \int_0^{H_s^*(0)} RG_s(R) dR \quad (14)$$

*all agents  $i \in [0, 1]$  prefer equity dominance and  $H = H_r^*(\alpha_i)$ .*

- *If*

$$\int_0^{H_r^*(0)} RG_r(R) dR < \int_0^{H_s^*(0)} RG_s(R) dR \quad (15)$$

*there is an  $\bar{\alpha} \in (0, 1)$  such that agents with  $\alpha_i > \bar{\alpha}$  prefer equity dominance and  $H = H_r^*(\alpha_i)$ , and agents with  $\alpha_i < \bar{\alpha}$  prefer bank dominance and  $H = H_s^*(\alpha_i)$ .*

Lemma 2 is proved in the appendix. It shows that under the stated assumption on  $A$  there are only two possible regimes for  $\alpha$ . Either all agents prefer equity dominance or the poorer agents prefer bank dominance and the richer ones equity dominance. Note that the desired levels of labor rents differ across agents even within one group.

Under condition (14), the risky strategy  $\sigma = r$  is relatively attractive, so that all voters will favor it. Under condition (15), the risky strategy is less attractive, and individuals prefer equity dominance only when sufficiently rich. As the cut-off value  $\bar{\alpha}$  is smaller than 1, individuals with average wealth ( $\alpha = 1$ ) will favour equity dominance. In fact, as Proposition 1 shows, the

preferred labor rents for  $\alpha = 1$  under either risk strategies are  $H = 0$ . Thus a voter with average financial wealth chooses to fully diversify income risk by minimizing labor rents, and supports equity governance. Individuals with little financial wealth ( $\alpha < \bar{\alpha}$ ) prefer the safer strategy, as they do not gain much from financial returns, but stand to lose on their uninsurable labor income from greater risk-taking.

The assumption that  $A\Gamma_s(H_0) \geq 1$  states that risk aversion in the economy is not too small. Recall that  $H_0$  is the value of  $H$  above which banks become risk-loving in our model. It is derived in Lemma 1 and decreases in the face value of bank debt outstanding,  $B$ . If risk aversion becomes so small that this assumption is violated, one more case could potentially arise. In this case, there is a third region for very small  $\alpha$ , where individuals are constrained by the bound on labor rents under bank control and prefer corporate risk-taking with high labor rents (if  $H_r^* \gg H_0$ ). This is the only possible exception to the dichotomy in Lemma 2 and could occur (in fact, we have not found an example where it does) if risk aversion is small, bank debt is high, and the safer strategy has a similar expected value to that of the riskier strategy. The proof in the appendix describes this case in more detail; we disregard it in what follows.

By the Median Voter Theorem and Lemma 2, the median voter's financial wealth position  $\alpha_m$  now yields a simple characterization of political equilibrium. This is our main result.

**Proposition 3** *Assume that  $A\Gamma_s(H_0) \geq 1$ . There is a critical value  $\bar{\alpha} \in [0, 1)$  such that in political equilibrium*

- *if  $\alpha_m < \bar{\alpha}$ , labor rents are high and banks are dominant,*
- *if  $\alpha_m > \bar{\alpha}$ , labor rents are low and equity is dominant.*

### III. Extensions

#### A. Large shareholders

Our base model has ignored a most common mode of corporate control, namely concentrated ("family") ownership. Concentrated ownership will emerge naturally when investor protection is weak, so that private control benefits can be large. But if legislation indeed reflects political choices, when would weak minority investor protection emerge in equilibrium?



Historically, equity holding dispersion took place gradually, if it took place, after many firms went public in the late 1800s (Franks, Mayer and Rossi, 2003). Yet there is some evidence that after the First World War, ownership concentration increased in several countries, e.g. in Sweden and Italy (Högfeltdt, 2003; Aganin and Volpin, 2003). Roe (2000) argues that strong owners were needed to resist the growing state and labor demands on private companies. Stulz (2005) makes a similar point, noting that large owners can be needed to control either state appropriation or managerial discretion. Yet an increased concentration of control must have been deemed politically acceptable to be allowed to arise.

Here we sketch how concentrated ownership may emerge as an alternative to bank governance. As in our main model, the expropriation of control benefits will be tolerated by a political majority if it leads to lower corporate risk taking. In fact, as large owners are poorly diversified, they have an interest in limiting risk. Moreover, solvency is a condition for maintaining their (endogenous) control rents, which reinforces their aversion to risk.

Formally, assume a continuum of firms  $i \in [0, 1]$  and a continuum of households  $j \in [0, M]$ , where  $M > 2$ , and each of the first  $i \in [0, 1]$  households holds a control stake  $\theta$  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 labor claim. All other households  $j \in (1, M]$  are employed (such that each firm has on average  $M - 1$  employees) and hold diversified financial claims in all firms, as in the main model.

Risk averse agents would choose to diversify and sell out their large stake, unless they receive some benefit from holding it. 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 then is

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

where  $R$  is the return of the firm controlled by the shareholder, and  $H$  and  $B$  the labor and debt claims in the firm as in the main model. Hence, the financial wealth generated by this firm for non-controlling households is

reduced by the private benefit of controlling owners:

$$\begin{cases} B + (1 - \theta)(R - H - B - C) & \text{if } R \geq H + B + C \\ B + (1 - \theta)(R - H - B) & \text{if } H + B \leq R \leq H + B + C \\ R - H & \text{if } H \leq R \leq H + B \\ 0 & \text{if } R \leq H \end{cases}$$

A controlling shareholder chooses the safer strategy if and only if

$$E[W_C | \sigma = r] - \frac{A}{2} \text{var}(W_C | \sigma = r) \leq E[W_C | \sigma = s] - \frac{A}{2} \text{var}(W_C | \sigma = s) \quad (16)$$

The median voter now chooses the level of labor rents  $H$  and of private control benefits  $C$ . The choice of  $C$  introduces a new element. On the one hand, a higher  $C$  reduces total financial wealth of non-controlling households directly. On the other hand, if  $C$  is too small, condition (16) will typically not hold. If the median voter does not own much financial wealth, he suffers less from granting control benefits and will be willing to endorse a large  $C$  such as to make (16) hold. If the median voter holds sufficient financial wealth, he will instead 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. This is consistent with the wide-spread use of equity pyramids, which are used in many countries to exercise control with a minimum of cash flow rights.

## B. Redistributive taxation, co-determination, and decentralized governance

There are some important qualifications and extensions to our analysis, which we cover more extensively in Perotti-von Thadden (2004).

Our principal assumption has been that labor income risk cannot be insured. Social insurance via taxation could in principle be a solution, as it would allow giving market investors control over corporate decisions, while funding a safety net via corporate taxes. We argue that this is at best a limited solution, as it reduces incentives and thus creates efficiency losses. While differing political preferences for redistribution and government abilities to raise taxes probably give rise to some of the observed cross-country variation in social policy, the limits to redistribution have recently been more and more recognized.

An interesting political construction is the attempt to let labor directly influence corporate decision making. The most pronounced incarnation of this idea is compulsory labor co-determination as practiced in large German firms. This generalizes our analysis, but we argue that under co-determination banks' and employees' incentives are not fully congruent, because banks are less conservative than labor.

A clearly simplistic assumption of our analysis has been that the structure of corporate governance is a direct political decision for all firms. While legislative choices affect decision making at the firm level, in any decentralized market economy individual firms may choose their own leverage; and if a firm had no debt at all, it is hard to see how they may be dominated by lenders.

Of course, most legislative decisions 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). In contrast, 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. Restrictive regulation, poor transparency rules or weak enforcement of investor rights may cause capital markets to remain underdeveloped, so that banks dominate access to capital. may undermine arms' length capital market activity, and affect particularly start-up finance. The IPO process, a classical channel for growth firm to emancipate from bank dominance, may be undermined by legal impediments. In Germany, for example, banks had historically significant influence on stock exchange committees regulating the listing process.<sup>17</sup>

Finally, in Perotti-von Thadden (2004) we illustrated how fiscal policy may indirectly affect the attractiveness of dominant investor choices. Consider the universal fact that debt offers a fiscal advantage to firms.<sup>18</sup> A political majority interested in controlling the riskiness of corporate performance may offer some fiscal advantage to shareholders which accept a significant role for lenders in their investment decision. While shareholders of firms

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<sup>17</sup>Franzke, Grobs, and Laux (2004) use this to explain why between 1988 and 1995 there were only 151 IPOs in Germany, compared to more than 1000 in the U.K.

<sup>18</sup>This feature is hard to explain in economic terms, since interest payments are not a business cost but represent returns to investors just as dividends and capital gains, which are usually taxed.

with excellent risky opportunities will opt out of this choice to retain discretion over their investment choices, those for which opportunities are less attractive may accept to become bank dominated.

## IV. Empirical and Historical Evidence

### A. Cross-country comparisons

The political equilibrium of Proposition 3 relates the form of governance and labor rents to the distribution of financial wealth under the assumption of democratic decision-making. A society with more diffused financial wealth should exhibit developed equity markets, strong minority protection, weak employee protection, developed equity markets, a market for corporate control, more volatile corporate earnings, and higher bankruptcy rates. In an economy with more concentrated financial 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, high labor costs, and less volatile earnings.<sup>19</sup>

Unfortunately, there is little data available on the distribution of financial wealth. Total financial asset holdings per GDP are generally known to be highest in the US and UK, and far lower in France and Germany (Miles, 1996). More importantly, compositions of portfolios are very different. Table 1 shows that in the early 1990s households in the U.S. and the U.K. held around 50 percent of their wealth in shares, while in Germany, France, and Japan the corresponding number was only around 15 percent. Households in the U.K. and the U.S. should therefore be much more concerned with equity returns.

Table 1 about here

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

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<sup>19</sup> Additional features of equity dominance analyzed elsewhere (Perotti and von Thadden, 2003) are a higher level of competition, corporate transparency, and more informative stock prices.

class owned shares, and slightly below 40 percent in the Netherlands and the U.K.<sup>20</sup> Once again, the US appears to be at one extreme, and France, Italy and Germany at another, with the Netherlands and the U.K. in the middle.<sup>21</sup>

Table 2 about here

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 redistributive taxation, this has a considerable impact on households' appreciation of financial market returns.

Table 3 about here

Differences in the distribution of wealth seem correlated with the structure of capital markets. Table 4 presents two obvious indicators 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

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<sup>20</sup>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.

<sup>21</sup>See Guiso, Japelli and Halassios (2002) and Babeau and Sbrana (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.

is smallest in the former group of countries and biggest in the latter. The Netherlands, Switzerland and Japan are in between.<sup>22</sup>

Table 4 about here

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.<sup>23</sup>

However, the direction of causation 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 largely overlaps with ours.<sup>24</sup> 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 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.

## B. 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. Only Britain emerges consistently as strongly equity-market oriented. Yet, even in

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<sup>22</sup>Market size may overstate the role of equity in governance. In Japan until recently corporate control was kept within a web of bank-centered relationships (e.g., Prowse, 1995).

<sup>23</sup>We follow here Demirguc-Kunt and Levine (1999), which uses many indicators to classify countries either as market-oriented (M) or bank-oriented (B) (see Table 4).

<sup>24</sup>The four countries identified in Table 4 as most 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.

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 scale developed by LaPorta et al. (1998), and rather suggested that personal reputation limited managerial abuse. 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 were more restrictive; this would reflect the interests of the richer *rentier* part of the population, the sole with the right to vote at the time.

Thus during the first half of the 20th century, capital markets in some countries (such as the UK and Switzerland) remained important, in others (such as Australia and the U.S.) they greatly expanded, and finally some other ones (notably Belgium, Austria, Germany and France) experienced “great reversals” (Rajan and Zingales, 2003a).

Our political economy approach can shed light on these developments. The 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 franchise, 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. The political change made what is now called the middle class pivotal in elections. Our key observation is that the damage and the consequences of the first world war seem to have had a different redistributive effects on the middle class in these countries, which shaped its perception of risks and gains associated with free markets.

Specifically, we look at the inflationary shock after the first world war. 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 arguably held more real assets (in particular, high-value real estate and blocks of shares), 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”.<sup>25</sup>

The inflationary consequences of the First World War, in most cases 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.

Table 5 about here

In our sample of 13 OECD countries the price levels either less than tripled between 1914 and 1949 (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.<sup>26</sup>

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<sup>25</sup>Eulenburg (1924, p. 789, *our translation*). Interestingly, the author explicitly notes that the concentration of wealth reverses the broader financial participation of the middle class before World War I: “while before the war there were good reasons to speak of ‘democratic capitalism’ that manifested itself in a widespread possession of capital, one now can rather speak of a capitalist oligarchy ... similar, though of a different kind, to the financial oligarchy of France” (pp. 790).

<sup>26</sup>For Sweden, there seems to be some tension between the decline of the importance of stock markets identified by Rajan and Zingales (2003a) and the classification by Demirguc-Kunt and Levine (1999). We believe that Demirguc-Kunt (1999) overestimate the true



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.<sup>27</sup> 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.<sup>28</sup> 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.

### C. 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 (2003) find that bankruptcy

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importance of the stock market, and that Sweden is a good example for our theory of large owners sketched in Section 3. When universal suffrage was introduced in 1921, 14 families dominated the thriving economy (Högfeldt, 2004) and the stock market was well developed (see Table 4). Over the course of the next 50 years, Sweden pursued almost proverbial ambitious egalitarian policies that reduced the relative importance of the stock market, while at the same time cementing the power of large owners and increasing labor rents.

<sup>27</sup>When the US entered the war in 1917, the government had only a modest public debt, and funded the military build-up via a massive door-to-door bond sale program, which it honored after the war. We thank Luigi Zingales for this reference.

<sup>28</sup>These countries were also the ones with the largest war damage. For example, Austria and Switzerland on the one hand, and Belgium and the Netherlands on the other - two pairs of similar countries with the same legal origins in the classification of LLSV (1998) - differ not only sharply in their inflationary experience after World War 1, but also in the direct impact the war had on them.

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, exit and more stability in product markets.<sup>29</sup> 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.<sup>30</sup> This is consistent with the prediction that corporatist systems limit risk in corporate strategies to protect labor rents.

## V. 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 labor 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.<sup>31</sup> Perhaps more interestingly, the theory suggests that corporate governance systems can change with 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.<sup>32</sup>

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<sup>29</sup>For a formal model, see Perotti and von Thadden (2003).

<sup>30</sup>See Hellwig (2000) for an interesting discussion. He argues that bank control can simply be a collusive device that protects management from outside pressure in the financial or product markets.

<sup>31</sup>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.

<sup>32</sup>Rajan and Zingales (2003b) discuss some of the historical difficulties in the emergence

The theory proposed here also sheds some light on 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 helps to explain the degree of market development in civil law countries that stayed out of the war, such as the Netherlands and Switzerland, despite their "wrong" legal origin. Accordingly, the emergence of insider-outsider financial systems may be the result of political choices following historical events, and not exclusively of historical legal origin.<sup>33</sup> 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 theoretical prediction.

Our approach can help to explain the so called UK-puzzle in corporate governance. "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..."(Allen and Gale (2000), pp. 110-111). We suggest that the median voters in the UK and the US are very similar in their orientation to financial returns, so it is not surprising that a political majority in the UK prefers to restrict banks' influence on firms. This seems not to be achieved through formal laws as in the U.S., but rather through informal (gentlemen) agreements between the City, the Bank of England, and the government, perhaps a distinct British feature.<sup>34</sup>

In our framework, for banks to have influence it not necessary that they finance a large share of corporate balance sheets. Equityholders, of course,

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(or creation) of such a group.

<sup>33</sup>We concur that common law has distinctive features restraining state influence which has a favorable impact on private sector autonomy and market development. We cannot judge to what extent the legal system had an impact on the outcome of the first world war and the extent to which governments resorted to the inflation tax after the war (in which case our identifying variable would cease to be exogenous).

<sup>34</sup>See Franks, Mayer and Rossi (2003) for an exploration of this issue.

may in part emancipate from bank dominance by taking on less bank debt. However, if a political majority opposes this trend, it can devise many direct (e.g. regulation) and indirect (e.g. fiscal) means to grant banks critical influence on firm decisions.

A challenge for future research is to explore further the dynamics of institutional change implicit 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. Our work therefore has some interest for the evolution of corporate governance towards a more market-oriented financial structure that seems to be currently under way in Continental Europe.

## Appendix: Proof of Lemma 2

Define  $\alpha_0 < 1$  by

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

By (13) in the main text, the voter's preferred choice of  $H$  under the safe strategy satisfies  $H_s^*(\alpha) \leq H_0$  if and only if  $\alpha \geq \alpha_0$ . On the other hand, by Proposition 2, if  $\alpha < \alpha_0$  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

$$\begin{aligned} u_\sigma(\alpha) &= U(\alpha, H_\sigma^*(\alpha), \sigma) \\ &= \begin{cases} \alpha \bar{R}_\sigma & \text{if } \alpha \geq 1 \\ \alpha \bar{R}_\sigma - \frac{(1-\alpha)^2}{2A} + A \int_0^{H_\sigma^*(\alpha)} R G_\sigma(R) dR & \text{if } \alpha \leq 1 \end{cases} \end{aligned} \quad (17)$$

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

$$\begin{aligned} u'_\sigma(\alpha) &= U_\alpha(\alpha, H_\sigma^*(\alpha), \sigma) \\ &= \int_{H_\sigma^*(\alpha)}^\infty (R - H_\sigma^*(\alpha)) dG(R) \\ &> 0 \end{aligned} \quad (18)$$

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  $u_\sigma$  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 (18) shows that for  $\alpha \geq \alpha_0$ ,

$$u'_r(\alpha) > u'_s(\alpha). \quad (19)$$

Hence, for  $\alpha \geq \alpha_0$  the graphs of  $u_s$  and  $u_r$  can intersect at most once. If  $A\Gamma_s(H_0) \geq 1$ , then  $\alpha_0 = 0$ , and the proof is complete.

As argued in Proposition 2, 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),

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

where

$$T = \frac{A}{2}\Gamma_s(H_0)^2 - (1 + AH_0)\Gamma_s(H_0) + H_0 + A \int_0^{H_0} RG_s(R)dR. \quad (20)$$

One easily verifies that  $v_s$  is continuous and even 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  $\alpha$ '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  $\bar{\alpha} < 1$ : for  $\alpha \geq 1$  risky investment and equity dominance are preferred. Furthermore, by the single-crossing property (19), 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 (17) 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 ( $\bar{\alpha}$ ), while  $v_s > u_r$  for  $\alpha \in (\underline{\alpha}, \bar{\alpha})$ .

The two graphs intersect exactly once iff  $v_s(0) > u_r(0)$ . If  $\alpha_0 > 0$ , note that by the definition of  $\alpha_0$ ,  $\Gamma_s(H_0) < 1/A$  and that  $v_s(0) = T$ , given by (20). 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 (20) by  $1/A$  to obtain

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

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 the following condition is sufficient for  $v_s(0) > u_r(0)$ :

$$\int_0^{H_r^*(0)} RG_r(R)dR < \int_0^{\min(R_0, H_s^*(0))} RG_s(R)dR$$

This condition generalizes condition (15) in the lemma.

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## Tables

**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)*

**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	18.9
Netherlands	4.4	16.9	36.8	75.9	33.5
U.K.	4.9	11.9	37.8	71.1	31.5
U.S.	4.4	38.3	66.0	86.7	48.9

*Note: Indirect and direct holdings*

*Source: Guiso, Haliassos and Jappelli (2002)*

**Table 3: Stocks of pension assets in selected countries**

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

*Note: Value in percent of GDP, end-1996*

*Source: Miles and Timmermann (1999)*

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

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

*Notes: SMC = Stock market capitalization, Dep = Total bank deposits.*

*DKL Classification: M = market-oriented, B = bank-oriented. The four most strongly market-oriented values in each column are in bold.*

*Source: Rajan and Zingales (2003a) and Demirguc-Kunt and Levine (1999)*

**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
<b>Austria</b>	100	2,492	HYP	-	-	-	-	-
<b>Belgium</b>	100		469	805	639	748		2,785
Canada	100	166	149	155	121	129	151	203
<b>France</b>	100	268	395	621	491	763	2,013	12,830
<b>Germany</b>	100	403	HYP	-	-	-	-	-
<b>Italy</b>	100	331	481	503	370	516	4,292	23,665
<b>Japan</b>	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 hyperinflation; 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*