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# Bank Ownership and Financial Stability

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# Bank Ownership and Financial Stability

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## Abstract

We study how political choices on the allocation of bank control affects bank instability. The political trade off between lobby contributions and social welfare is determined by political accountability.

When accountability is low, inefficient state banks are chosen to maximize extraction. As accountability rises, a shift to private control reduces inefficiency. At the transition point bank risk taking jumps, as private owners do not internalize all costs of failure. As accountability rises further, two effects arise. First, politicians allow higher private rents to discourage risk taking. Second, bank ownership becomes more dispersed and entry increases, decreasing solvency incentives.

*Keywords: Political Economy, Bank Control, Lobbying, Instability*

*JEL Classifications: D70, G21, G28*

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# 1 Introduction

We study how political structure influence financial stability. Until recently, systemic crises were seen mostly as a risk for emerging countries, undermined by weak private and public governance. The credit crisis of 2007-08 has altered this view, highlighting how the role of perverse incentives shaped by regulation need to be considered next to novel doubts on market rationality. Many observers concluded that political capture has led regulation to tolerate excess risk taking by intermediaries.<sup>1</sup>

In our model, a political choice assigns decision rights over bank lending, in a context when regulatory oversight is ineffective and deposit insurance reduces market discipline. Whoever controls the bank thus has full discretion to assign loans and set their terms. The allocation of control is the outcome of an explicit lobbying model, where politicians trade off a weighted average of social efficiency and political contribution, weighted by accountability.<sup>2</sup> The approach offers predictions on when bank control shifts to the private sector and on the dispersion of private ownership. Each governance structure shapes financial instability.<sup>3</sup> Interestingly, as political accountability increases, instability is driven first by high expropriation, then by captured regulation around the shift to private control, while at a high level of political accountability private risk taking may increase because high entry reduces solvency rents.

Since crises are disruptive, greater accountability should induce politicians to contain instability more. The model shows why this may not happen. First, social welfare include bank efficiency, so when banks become more efficient they may be allowed to be riskier. Second, compressing risk taking incentives is hard in a context where regulation is weak. When social welfare includes entry, more accountability increases entry and weakens solvency incentives.

In the basic model, credit is scarce and constrains entry, allowing entrepreneurs to earn rents. A single politician choose whether to allow private bank ownership, or to control lending directly through a (less efficient) state bank. Interest groups next lobby either to be assigned bank control, or to gain access to state bank loans. Bankers, whether private or state officials, assign loans and decide loan terms. In turn, loan terms determine how much collateral may be privately appropriated during production, and thus bank vulnerability in case of exogenous aggregate shocks. Bank distress shifts losses to deposit insurance and disrupts production, damaging social welfare.

In summary, the politician faces the following choice: either incur inefficiency costs by directly controlling the banking sector and its stability, *or* reduce inef-

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<sup>1</sup>Successful industry lobbying is widely cited as critical to the effective weakening of capital ratios under the Basel II regulatory process. Political pressure encouraged the massive expansion of subprime lending in the US (Rajan, 2010).

<sup>2</sup>Mian, Sufi and Trebbi (2010) confirm that US congress voting on mortgage relief depends on mortgage related defaults in their constituency as well as lobby contributions from the financial services industry, validating our setup.

<sup>3</sup>Accountability may be interpreted as the degree to which politicians need to satisfy citizen interests to remain in power. We treat it as a reduced form for their preference for social welfare over bribes, as shaped by political institutions.

efficiency by ceding bank control to an interest group, but losing direct influence over bank stability. The trade off is between private bank efficiency and greater risk taking, as private lending does not internalize the social costs of bank failure.

The politician prefers state banks when accountability is low, so that they can capture all profits as private benefits. He internalises instability more as accountability increases, so funnelling chosen by the state bank decreases with accountability. For intermediate accountability the politician chooses private bank control to reduce inefficiency costs.

This transition may be interpreted as a shift to limited government in the sense of North and Weingast (1986), as private rents net of political bribes become positive. At the transition to private control, bank default risk jumps, and declines as accountability increases further. The politician can affect funneling by leaving more rents to the private sector, which increase monotonically over political rents as accountability rises.

A main result is the discrete instability jump at the endogenous transition to private bank control. In an economy where political accountability is steadily rising over time, privatization will take place at a level of intermediate accountability. The politicians allows such a jump in risk taking because social welfare jumps reflecting the gain in efficiency by private ownership. In other words, in the political choice the benefit of increased efficiency allows politicians to get away with more instability at the transition point. The implication is that a higher incidence of banking crises should be observed in countries at the point where the state withdraws from direct control. Privatisation occurs *endogenously* at an institutional stage when regulation is quite vulnerable to capture by special interests.

An important extension endogenises the size of lobbies to study the choice over breadth of access to finance. At the transition point to private control accountability is still modest, so a small lobby secures control over the bank. As accountability rises, politicians seek higher entry, lower prices and higher social welfare, so bank ownership becomes more diffused. However, lower profits from higher entry increase risk incentives.<sup>4</sup> So a highly accountable government which produce broad access to finance builds up its own cause of instability (Rajan 2010).

Our approach focuses on bank control, and has clear limitations. We rule out risk regulation, as in practice bankers have broad discretion in lending choices. We focus on bank default arising from aggregate financial shocks, rather than firm-level defaults, so we describe larger banking crises rather than risky lending by an individual bank. Finally, we abstract from depositor-based instability by imposing full deposit insurance.

The model takes comfort from recent evidence (reviewed after the model) on state and private banks, as well as the concentration of private bank control. Graph 1-3 show simple suggestive evidence how the share of bank as-

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<sup>4</sup>This result is well recognized in the banking literature on charter value and bank risk taking.

sets controlled by state, family and independent (widely-held) banks varies as predicted.<sup>5</sup> State banks are most common in low and medium accountability countries, family banks dominate at intermediate levels, and diffusely held banks prevail in high accountability countries. The relationship holds when controlling for *legal origin*, which is also significant (La Porta et al, 2002).

The paper proceeds as follows. Section 2 presents the model and solves for the political choice over bank governance and financial instability. Section 3 extends the model for implications on the breadth of access to finance, and the effect of increased competition. Section 4 discusses the literature and existing evidence, and Section 5 concludes.

## 2 Model

A single politician chooses bank control  $C = \{S, P\}$ , either state control  $S$  or private control  $P$  of a single bank. State ownership imposes an inefficiency cost  $E > 0$  borne by taxpayers. Alternatively, a private group may be allowed to operate a bank. Part of a population of measure one, any citizen  $i$  can become entrepreneur  $e$  and produce a single unit of final good by investing an amount  $I$ , resulting in a profit of  $\pi_{e,C}$ . Bank owners can assign loans of size  $I$  and set terms on the required collateral. For simplicity, we assume they lend to themselves, though our results would be equivalent if the private surplus were divided between bankers and entrepreneurs. We define  $n_C$  as the fraction of citizens who receive a loan and become entrepreneurs, while the residual set  $1 - n_C$  are pure consumers. We first assume  $n_C$  to be exogenous. Banks enjoy deposit insurance and are therefore able to raise funding for any required amount of investment  $n_C I$ . This deposit insurance is funded equitably by all citizens.

The loans are secured by a pledge on the investment good  $I$ . Loan contracts may enable some funneling of collateral during production. Specifically, let  $\theta_C \in [0, 1]$  denote the fraction of collateral which may be appropriated, reducing the loan repayment value to  $(1 - \theta_C) I$ .

Once loans are assigned, but before production takes place, the bank experiences an exogenous shock  $\varepsilon$  drawn from a uniform distribution over  $[0, 1]$ . As a reduced form, the bank faces distress whenever  $\theta_C > \varepsilon$ , implying a default probability of  $\theta_C$ . Upon distress, the bank recalls all loans. As this disrupts production, there is no output, and no funneling takes place.

### 2.1 Timing

At  $t = 0$  the politician determines bank control  $C = \{S, P\}$ . Under  $S$ , banks incur an inefficiency cost  $E$ , funded by citizens in the last period.

At  $t = 1$  the politician grants access to finance (under  $S$ ) or control over the bank ( $P$ ) to  $n_C$  citizens in exchange for compensation  $k_C$ .

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<sup>5</sup>We view independent banks as less captured by owners than family banks, related to a broader coalition (thus a larger winning lobby, and thus more bank insiders).

At  $t = 2$  the bank raises  $n_C I$  and grants  $n_C$  loans of size  $I$ . Borrowers invest  $I$  in a productive asset. The terms of the loan defines how the asset is pledged as collateral, and thus the share  $\theta_C \in [0, 1]$  of asset value which can be diverted by entrepreneurs during production at  $t = 4$ .

At  $t = 3$  nature draws  $\varepsilon$  from a uniform distribution with support  $[0, 1]$ . The bank defaults and recalls all loans when  $\theta_C > \varepsilon$ , so with probability  $\theta_C$ . Collateral is liquidated at a cost  $l > 0$ .<sup>6</sup>

At  $t = 4$ , if production is not disrupted, entrepreneurs produce and funnel  $\theta_C I$ .

At  $t = 5$  citizens receive their endowment  $\omega$ , buy the final good (if available) and spend the rest on the numeraire good. Entrepreneurs make their loan payment  $(1 - \theta_C)I$  to the bank and pay promised political contributions  $k_C$  is paid. Deposit insurance covers any bank shortfall. Efficiency costs  $E$  are incurred whether the bank defaults or not.

## 2.2 Utility

A fraction  $1 - n_C$  of citizens is consumer  $c$  while a fraction  $n_C$  is entrepreneur  $e$ . Both types  $i = c, e$  consume numeraire and final goods and have utility under bank goverance structure  $C = \{S, P\}$  of

$$U_{i,C} = x_i + ay_i - \frac{1}{2}y_i^2 \text{ for } i = c, e \quad (1)$$

where  $x_i$  and  $y_i$  are respectively the consumption of a single numeraire and a single final good and  $a$  is the strength of demand, with  $a > I$ .<sup>7</sup> Individual income equals a constant endowment  $\omega$  plus any firm profits  $\pi_{e,C}$ . Therefore the average citizen's consumption of the numeraire good is  $x_i = \omega + n_C \pi_{e,C} - y_i f$ , where  $f$  is the price of the final good.

Let the weight  $\beta \in [0, 1]$  represent the degree of political accountability, which relates to the sensitivity of the politician to social welfare. The politician's utility is a weighted average of social welfare (with weight  $\beta$ ) and political contributions (with weight  $1 - \beta$ ):

$$U_{p,C} = (1 - \theta_C) [\beta (s_C - \omega) + (1 - \beta) \pi_{p,C}] \quad (2)$$

where  $s_C$  and  $\pi_{p,C}$  are social welfare and the politician's expected income given governance structure  $C = \{S, P\}$ . Social welfare does not include endowment  $\omega$  as it is consumed independent of political choices or the production level.

For tractability we use a Utilitarian social welfare. It is the sum of the consumption utilities of consumers, entrepreneurs and the politician, that is

<sup>6</sup>Note that because production is disrupted and assets repossessed, the potential diversion  $\theta$  does not take place.

<sup>7</sup>This utility function is widely used in the literature as it greatly simplifies the analysis. Krugman (1992) derives it in a political economy model in a general equilibrium framework.

$$s_C = (1 - n_C) E[U_{c,C}] + n_C E[U_{e,C}] + E[\pi_{p,C}] \quad (3)$$

We now derive the functional representation of consumers' and entrepreneurs' utility, social welfare and the politician's utility under state banking  $S$  and private banking  $P$  based on the timeline and equations (1), (2) and (3).

### 2.3 Product market equilibrium

Maximising (1) with respect to  $x_i$  and  $c_i$  results in demand  $c_i = a - f$ . Supply  $n$  equals demand at a price  $f = a - n$ , and firm income is  $a - n - I$ . We define  $m$  as the level of entry for which income is zero, such that  $m = a - I$ . If banks were to grant loans to all projects with positive net present value, entry would be  $m$ . We assume throughout the whole paper that disposable income  $\omega \geq \max\{\frac{1}{4}a^2 + E, mI + E\}$ . This condition ensures that the endowment is large enough to fund the costs of state banks as well as consumers' demand for final goods plus deposit insurance in case of bank default.

#### 2.3.1 Consumers

After substituting the result above in (??) consumer's utility under  $S$  equals

$$U_{c,S} = \begin{cases} \omega + \frac{1}{2}(n_S)^2 - E - \theta_S n_S I & \text{when the bank is solvent} \\ \omega - E - L & \text{when the bank defaults} \end{cases} \quad (4)$$

where  $\frac{1}{2}n^2$  is the social benefit of greater entry,  $E$  the fiscal cost of state bank inefficiency and  $\theta n I$  the cost of deposit insurance due to resource diversion. The expected utility of a consumer under  $S$  is

$$E[U_{c,S}] = \omega + (1 - \theta_S) \frac{1}{2}(n_S)^2 - E - \theta_S L - (1 - \theta_S) \theta_S n_S I \quad (5)$$

Under  $P$ , citizens do not face costs  $E$  such that their utility is

$$U_{c,P} = \begin{cases} \omega + \frac{1}{2}(n_P)^2 - \theta_P n_P I & \text{when banks are solvent} \\ \omega - L & \text{when the bank defaults} \end{cases} \quad (6)$$

with expectation

$$E[U_{c,P}] = \omega + (1 - \theta_P) \frac{1}{2}(n_P)^2 - \theta_P L - \theta_P (1 - \theta_P) n_P I \quad (7)$$



### 2.3.2 Entrepreneurs

An entrepreneur makes profits of

$$\pi_{e,G} = \begin{cases} n_G - m - \frac{k_G}{n_G} + \theta_G I & \text{when the bank is solvent} \\ 0 & \text{when the bank defaults} \end{cases} \quad (8)$$

where  $\frac{k_G}{n_G}$  is the political compensation paid per entrepreneur. Expected profits per entrepreneur are

$$E[\pi_{e,G}] = (1 - \theta_G) \left( m - n_G - \frac{k_G}{n_G} + \theta_G I \right) \quad (9)$$

Because entrepreneurs simply consume their profits, their utility is

$$U_{e,G} = U_{c,G} + \pi_{e,G} \quad (10)$$

### 2.3.3 Politician

Finally, the politician  $p$  gets private benefits of

$$\pi_{p,G} = \begin{cases} k_G & \text{when the bank is solvent} \\ 0 & \text{when the bank defaults} \end{cases} \quad (11)$$

such that

$$E[\pi_{p,G}] = (1 - \theta) k_G \quad (12)$$

### 2.3.4 Social welfare

Social welfare is as in (3) becomes

$$s_S = \omega + (1 - \theta_S) \left[ \frac{1}{2} (n_S)^2 + n_S (m - n_S) \right] - E - \theta_S L \quad (13)$$

under  $S$  and

$$s_P = \omega + (1 - \theta_S) \left[ \frac{1}{2} (n_S)^2 + n_S (m - n_S) \right] - \theta_S L \quad (14)$$

under  $P$ .

### 2.3.5 Politician's utility

From (2) we find the politician's utility under  $S$

$$U_{p,S} = (1 - \theta_S) \left\{ \beta \left[ \frac{1}{2} (n_S)^2 + n_S (m - n_S) \right] + (1 - \beta) k_S \right\} - \beta (E + \theta_S L) \quad (15)$$

and under  $P$

$$U_{p,P} = (1 - \theta_P) \left\{ \beta \left[ \frac{1}{2} (n_P)^2 + n_P (m - n_P) \right] + (1 - \beta) k_P \right\} - \beta \theta_P L \quad (16)$$

## 2.4 Bank control and instability

We can now solve for the choice of funneling  $\theta_G$  and bribes  $k_G$  under state and private banking, under the assumption that entry is exogenous and set  $n_S = n_P = n$ . The next session will endogenize the breadth of access to finance.

### 2.4.1 State banking

Under state banking the politician can demand any  $k_S$  subject to  $0 \leq k_S \leq n(m - n) + \theta_S nI$ , hence satisfying the entrepreneurs' participation constraint.<sup>8</sup>

**Proposition 1** *Under state banking*

(a) *demanded political compensation equals firms' total income, that is  $k_S^* = n(m - n) + \theta_S^* nI$ .*

(b) *funneling  $\theta_S^*$  is decreasing in political accountability  $\beta$ , as long as it is non zero.*

**Proof.** The politician solves

$$\begin{aligned} & \max_{\theta_S, k_S} U_{p,S} & (17) \\ \text{s.t. } & 0 \leq k_S \leq n(m - n) + \theta_S nI \\ & 0 \leq \theta_S \leq 1 \end{aligned}$$

---

<sup>8</sup>Because all citizens are the same and  $m < \frac{1}{2}$ , there is 'perfect competition' between lobby groups for access to finance. In an earlier version of this paper we show that it is optimal for sequentially entering lobbyists to form maximise the politician's utility when choosing group size and contributions. Failing to do so enables another group to make a marginally better offer and gain preferential access to finance with certainty. Perotti and Vorage (2009) also formalise this argument when discussing direct control.

which yields

$$k_S^* = n(m - n) + \theta_S nI \quad (18)$$

and

$$\theta_S^* = \max \left\{ \frac{1}{2} - \frac{n[2m - (2 - \beta)n] + 2\beta L}{4(1 - \beta)nI}, 0 \right\} \quad (19)$$

Note that  $\frac{\partial \theta_S^*}{\partial \beta} \leq 0$ ,  $\frac{\partial \theta_S^*}{\partial I} \geq 0$ ,  $\frac{\partial \theta_S^*}{\partial m} \leq 0$ ,  $\frac{\partial \theta_S^*}{\partial n} \geq 0$  and  $\frac{\partial \theta_S^*}{\partial L} < 0$ .

The total compensation for the politician under state banking is

$$k_S^* = \begin{cases} n(m - n) + \left\{ \frac{1}{2} - \frac{n[2m - (2 - \beta)n] + 2\beta L}{4(1 - \beta)nI} \right\} nI & \text{for } \theta_S^* > 0 \\ n(m - n) & \text{for } \theta_S^* = 0 \end{cases} \quad (20)$$

and the politician's utility is

$$U_{p,S} = \begin{cases} \frac{n[2m - 2n + 2I - 2\beta I + n\beta]^2}{16(1 - \beta)I} - \left\{ \frac{1}{2} - \frac{n[2m - (2 - \beta)n] + 2\beta L}{4(1 - \beta)nI} \right\} \beta L - \beta E & \text{for } \theta_S^* > 0 \\ \frac{1}{2} \beta n^2 + n(m - n) - \beta E & \text{for } \theta_S^* = 0 \end{cases} \quad (21)$$

■

Under  $S$  the politician extracts all the entrepreneurs' profits and chooses funneling optimally. The size of funneled funds falls over accountability  $\beta$ , because its utility falls over  $\beta$  and bank default has a greater political cost the larger  $\beta$ . When  $\beta$  is high enough,  $\theta_S^*$  can even drop to zero such that no funds are funneled from state banks. The total political compensation  $k_S^* + \theta_S^* nI$  decreases over  $\beta$  until  $\theta_S^*$  reaches zero, after which they stabilise at  $n(m - n)$ .

#### 2.4.2 Private banking

Under private banking the lobbyist controls funneling  $\theta_P$  and the politician is able to choose any  $k_P \leq n(m - n) + \theta_P nI$ .

**Proposition 2** *Under private captured banking*

(a) *political compensation is smaller than firms' total income, that is  $k_P^* < n(m - n) + \theta_P^* nI$ .*

(b) *funneling  $\theta_P^*$  and compensation  $k_P^*$  are decreasing in  $\beta$ , as long as they are non zero.*

**Proof.** At  $t = 2$ , the lobbyist chooses funneling  $\theta$  to maximise their profits given  $k$ :

$$\begin{aligned} & \max_{\theta_P} E[\pi_{e,P}] & (22) \\ \text{s.t. } & 0 \leq \theta_P \leq 1 \end{aligned}$$

such that  $\theta_P^* = \frac{n(I-m+n)+k_P}{2nI}$ . At  $t = 1$  the politician chooses  $k_P$ , anticipating future funneling by private bankers:

$$\begin{aligned} & \max_{k_P} U_{p,P} & (23) \\ \text{s.t. } & 0 \leq k_P \leq n(m-n) + \theta_P nI \end{aligned}$$

After some algebra this results in

$$k_P^* = \max \left\{ n(m-n) + \left\{ \frac{1}{2} - \frac{n[2m-(2-\beta)n]+2\beta L}{4(1-\beta)nI} \right\} nI, 0 \right\} \quad (24)$$

and

$$\theta_P^* = \begin{cases} \max \left\{ \frac{3}{4} - \frac{n[2m-(2-\beta)n]+2\beta L}{8(1-\beta)nI}, 0 \right\} & \text{if } k_P > 0 \\ \max \left\{ \frac{I-m+n}{2I}, 0 \right\} & \text{if } k_P = 0 \end{cases} \quad (25)$$

It is easy to verify that  $\frac{\partial \theta_P^*}{\partial \beta} \leq 0$ ,  $\frac{\partial \theta_P^*}{\partial I} \geq 0$ ,  $\frac{\partial \theta_P^*}{\partial m} \leq 0$ ,  $\frac{\partial \theta_P^*}{\partial n} \geq 0$  and  $\frac{\partial \theta_P^*}{\partial L} < 0$ .<sup>9</sup>

The utility of the politician is

$$U_{p,P} = \begin{cases} - \left\{ \frac{3}{4} - \frac{n[2m-(2-\beta)n]+2\beta L}{8(1-\beta)nI} \right\} \beta L & \text{for } k_P^* > 0 \\ \beta \left( \frac{m-n+I}{2I} \right) \left[ \frac{1}{2} n^2 + n(m-n) \right] - \beta \left( \frac{I-m+n}{2I} \right) L & \text{for } k_P^* = 0 \end{cases} \quad (26)$$

■

The main difference between  $S$  and  $P$  is that now the politician now 'leaves money on the table' when demanding political contributions. Leaving rents to entrepreneurs reduces funneling, as they lose exactly these rents upon default. Contributions  $k_P^*$  and entrepreneurs' income  $n(m-n) + \theta_P^* nI$  are depicted in Figure 1. For large enough  $\beta$  compensation  $k_P^*$  falls to zero. For such  $\beta$  funneling and the entrepreneurs' profits stabilise.<sup>10</sup>

<sup>9</sup> One can show that  $k_{PC} > 0$  for sufficiently low  $\beta$ , for which  $\frac{3}{4} - \frac{2m-(2-\beta)n}{8(1-\beta)I} > \frac{I-m+n}{2I}$ .

<sup>10</sup> The extension with endogenous entry shows that at such a threshold politicians choose to limit entry, to maintain private rents in solvent times.

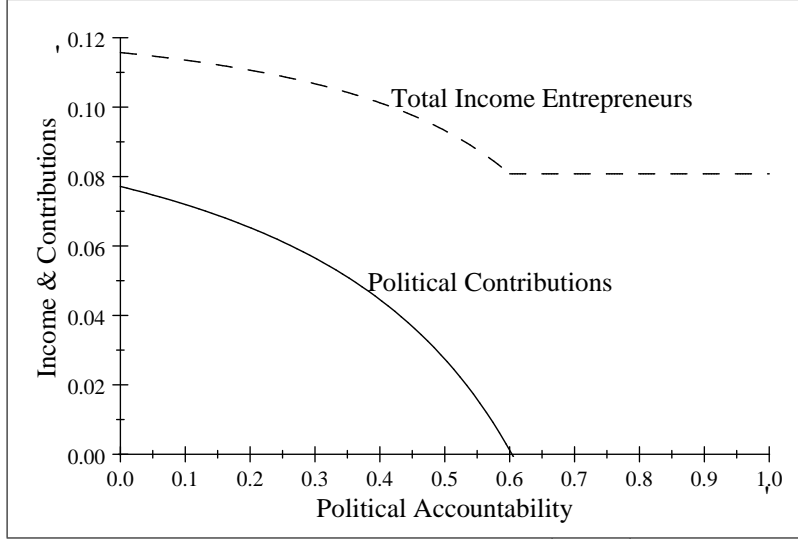


Figure 1: Income and contributions for  $m = \frac{1}{2}$ ,  $I = \frac{1}{3}$  and  $L = 0$ .

## 2.5 Choice of bank governance

The politician compares his utility under state and private banking. In figures 2a till 5b we depict the politician's utility and funneling for  $m = \frac{1}{2}$ ,  $n = \frac{3}{8}$ ,  $I = \frac{1}{3}$  and  $E = \frac{1}{10}$ . For costs  $L$  we show the results for  $L = 0$  and  $L = \frac{1}{10}$ . The dashed line refers to state banking  $S$  and the solid black line to private banking  $P$ . Bold line segments are part of the equilibrium.

From (21) and (26) one can see that the politician prefers  $S$  for low enough  $\beta$  and  $E$ , as depicted in figure 2a.

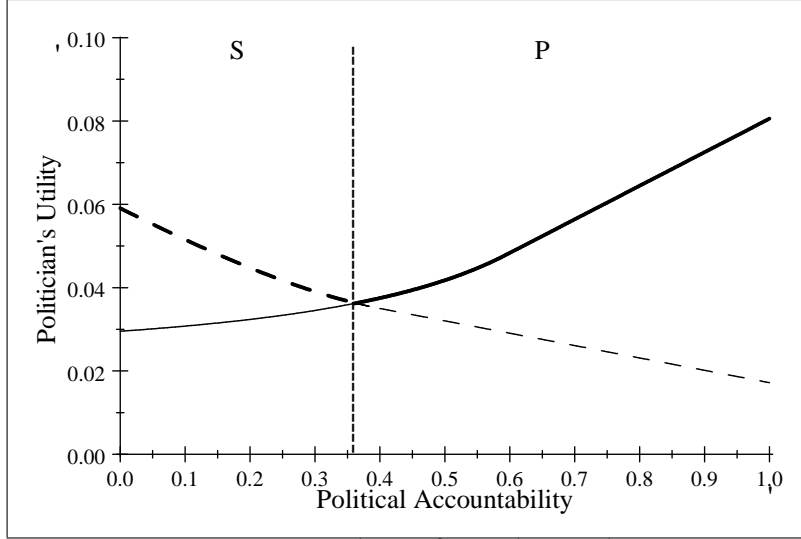


Figure 2a: Utility for  $m = \frac{1}{2}$ ,  $n = \frac{3}{8}$ ,  $I = \frac{1}{3}$ ,  $E = \frac{1}{10}$  and  $L = 0$ .

Figure 2b shows that when costs  $L$  are positive and default is hence more costly, control over funneling remains in state hands for higher accountability.

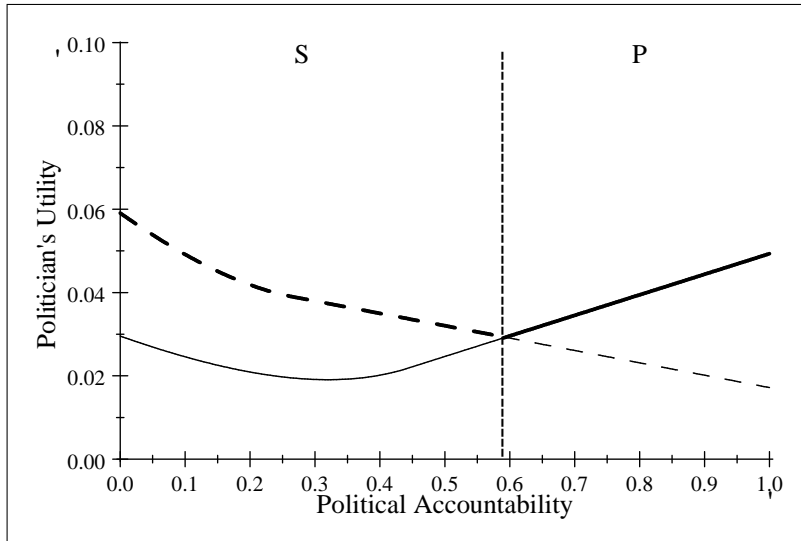


Figure 2b: Utility for  $m = \frac{1}{2}$ ,  $n = \frac{3}{8}$ ,  $I = \frac{1}{3}$  and  $E = L = \frac{1}{10}$ .

**Proposition 3** *The politician's private benefits are never lower under S than under P.*

**Proof.** Subtracting (24) from (20) we find the difference in rents

$$k_S^* - k_P^* = \begin{cases} 0 & \text{for } \theta_S^* > 0 \wedge k_P^* > 0 \\ \left\{ \frac{n[2m - (2-\beta)n] + 2\beta L}{4(1-\beta)nI} - \frac{1}{2} \right\} nI & \text{for } \theta_S^* = 0 \wedge k_P^* > 0 \\ n(m-n) & \text{for } \theta_S^* = 0 \wedge k_P^* = 0 \end{cases} \quad (27)$$

which is positive. ■

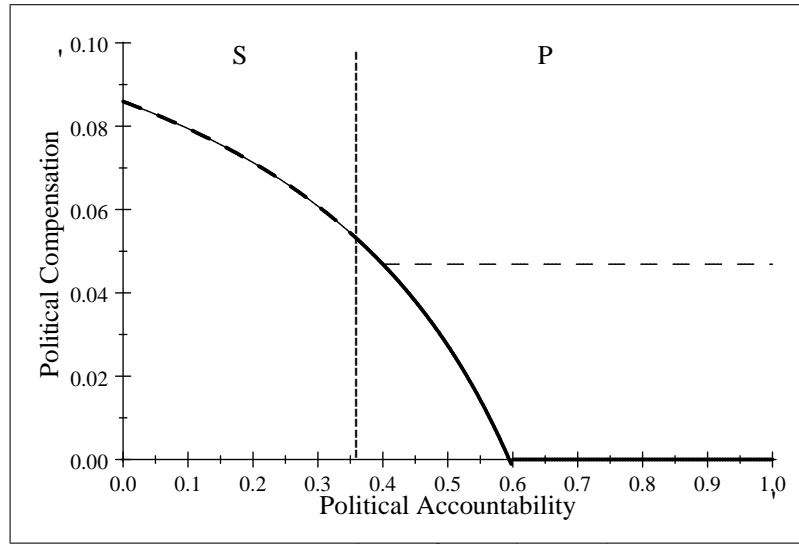


Figure 3a: Rents for  $m = \frac{1}{2}$ ,  $n = \frac{3}{8}$ ,  $I = \frac{1}{3}$ ,  $E = \frac{1}{10}$  and  $L = 0$ .

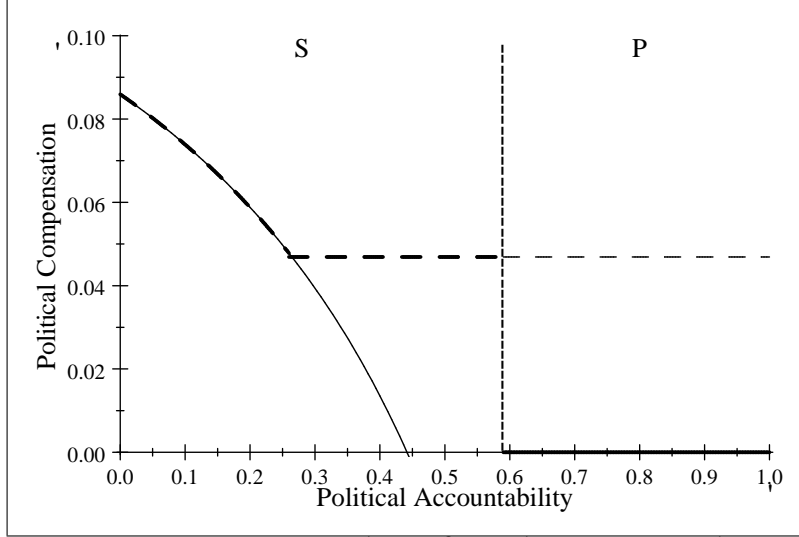


Figure 3b: Rents for  $m = \frac{1}{2}$ ,  $n = \frac{3}{8}$ ,  $I = \frac{1}{3}$  and  $E = L = \frac{1}{10}$ .

Political compensation is highest under  $S$  and always positive, because the politician always extracts  $k_S^* = n(m - n) + \theta_S^* nI$ . Under  $P$ , the politician limits his request  $k_P^*$  to in an effort to limit  $\theta_P^*$ . When repossession costs  $L$  are low enough as in figure 3a (or inefficiency cost  $E$  is high enough) the transition from  $S$  to  $P$  occurs at low accountability  $\beta$  such that political compensation does not fall upon privatisation. When  $L$  is high however (figure 3b), privatisation happens at higher  $\beta$  and political contributions fall.

**Proposition 4** *The share of firms' total income appropriated by the politician decreases in political accountability, as long as it remains positive.*

**Proof.** The results follows from

(i) the politician choosing  $S$  for low and  $P$  for high accountability as depicted in Figure 2a.

(ii)  $k_S^*$  being equal to firms' total income while the share of  $k_P^*$  in firms' total income is smaller than one and decreasing in  $\beta$ . See equations (20) and (24). ■

Figure 4 depicts the share of firms' total income appropriated by the politician (black) and entrepreneurs (grey) under  $S$  and  $P$ . Income shifts towards entrepreneurs upon the transition from  $S$  to  $P$  even when  $L = 0$  and the transition occurs at low accountability  $\beta$ .



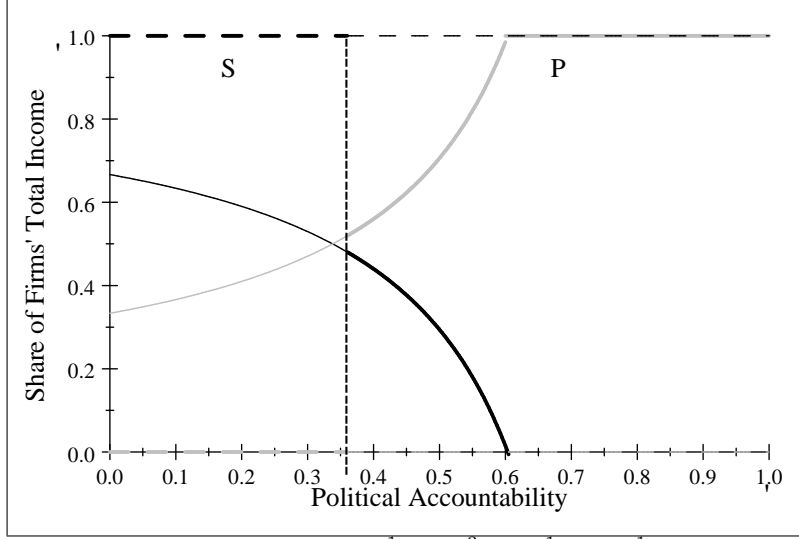


Figure 4: Sharing rents for  $m = \frac{1}{2}$ ,  $n = \frac{3}{8}$ ,  $I = \frac{1}{3}$ ,  $E = \frac{1}{10}$  and  $L = 0$ .

We now present our main result

**Proposition 5** *There is at least as much funneling and instability under P than under S.*

**Proof.** From (19) and (25) it follows that

$$\theta_P^* - \theta_S^* = \begin{cases} \frac{1}{4} + \frac{n[2m - (2-\beta)n] + 2\beta l}{8(1-\beta)nI} & \text{for } \theta_S^* > 0 \wedge k_P^* > 0 \\ \max \left\{ \frac{3}{4} - \frac{n[2m - (2-\beta)n] + 2\beta l}{8(1-\beta)nI}, 0 \right\} & \text{for } \theta_S^* = 0 \wedge k_P^* > 0 \\ \max \left\{ \frac{I - m + n}{2I}, 0 \right\} & \text{for } \theta_S^* = 0 \wedge k_P^* = 0 \end{cases} \quad (28)$$

which is nonnegative. ■

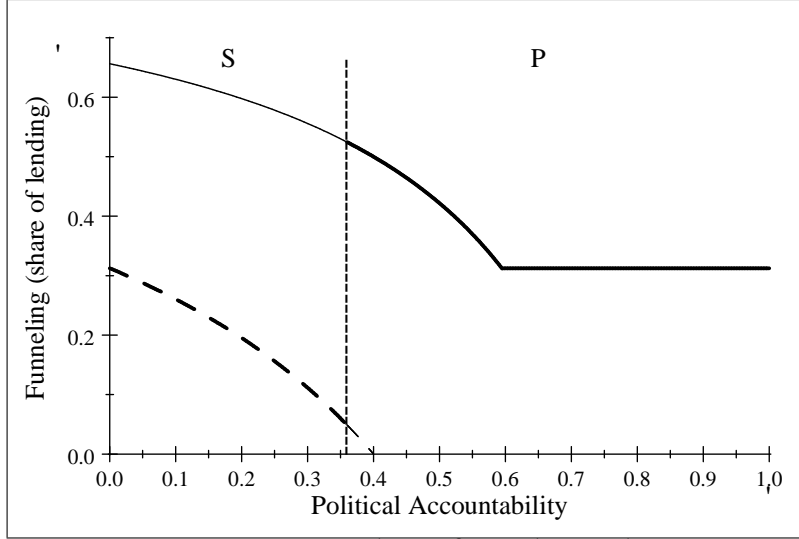


Figure 5a: Funneling for  $m = \frac{1}{2}$ ,  $n = \frac{3}{8}$ ,  $I = \frac{1}{3}$ ,  $E = \frac{1}{10}$  and  $L = 0$ .

It is easy to show that  $\theta_P^* > \theta_S^*$ . The politicians anticipate an increased bank default risk under private banking, and seeks to provide incentives to funnel less. This is one of the main results of the paper, and implies a greater risk of bank default under *PC* than under *S*. Private bank owners do not incorporate the negative effects of bank default on social welfare. The discontinuity in risk is clear from figure 5a.

When repossession costs  $L$  increase, funneling falls under both *S* and *P* and especially for low  $\beta$ , as depicted in figure 5b.

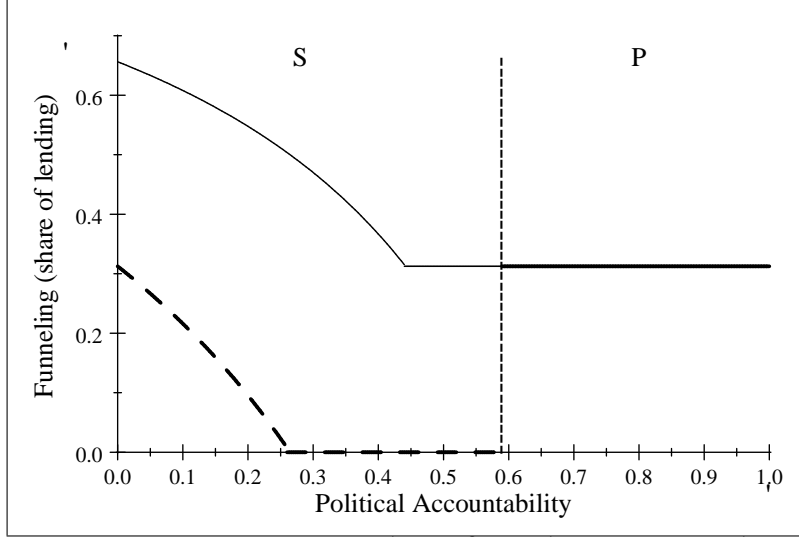


Figure 5b: Funneling for  $m = \frac{1}{2}$ ,  $n = \frac{3}{8}$ ,  $I = \frac{1}{3}$  and  $E = L = \frac{1}{10}$ .

In summary, when accountability  $\beta$  is low the politician does not care much about efficiency costs  $E$  and prefers state control over banks to funnel funds directly. However, when  $\beta$  or  $E$  increase sufficiently, bank governance shifts to  $P$ . This shift of control over banks to entrepreneurs increases bank efficiency but leads to more funneling than what is optimal for the politician. Figures 5a and 5b show how a transition from  $S$  to  $P$  increases funneling and the bank's default probability. As  $\beta$  increases further, the political costs of instability increase. Thus the politician demands smaller and smaller compensation to incentivise the private bank owners to funnel less. At a sufficiently high  $\beta$  compensation drops to zero and funneling stabilises.

### 3 Endogenous access to finance

This section studies lobbying for preferential access to finance. Now politicians are lobbied by competing coalitions of citizens seeking preferential access. Next to the level of contributions  $k_G$ , the politician now also announces the desired size of coalition  $n_G$  at  $t = 1$ . In this section we set  $L = 0$ .

#### 3.1 Product market equilibrium

As in the basic model social welfare  $s_G = \frac{1}{2}(n_G)^2 + n_G(m - n_G)$ , maximised by allowing full entry  $n_G = m$ . Higher production leads to higher per citizen consumption at a lower unit price, an effect which outweighs lower firm profits.

Entrepreneurs' collective income  $n_G (m - n_G)$  is maximised by limiting entry at  $n_G = \frac{1}{2}m$ .

### 3.2 State banking

Under state control, coalitions of  $n_S$  agents try to convince the politician to directly provide finance to members of their group. As before, citizens incur efficiency costs  $E$ .

**Proposition 6** *Under state banking*

- (a) entry  $n_S^*$  is increasing in political accountability  $\beta$ .
- (b) political compensation equals firms' total income and decrease in accountability  $\beta$ .
- (c) funneling  $\theta_S^*$  is decreasing in political accountability  $\beta$ , as long as it is non zero.

**Proof.** Under state banking the politician can choose entrants independent of welfare  $w_i$ . As a result all citizens are the same in the lobbying game and lobby groups try to outbid each other by choosing a level of entry

$$\begin{aligned} & \max_{n_S, \theta_S, k_S} U_{p,S} & (29) \\ \text{s.t. } & 0 \leq k_S \leq n_S (m - n_S) + \theta_S n I \\ & 0 \leq \theta_S \leq 1 \end{aligned}$$

resulting in

$$\begin{aligned} k_S^* &= n_S^* (m - n_S^*) + \theta_S^* n I \\ \theta_S^* &= \max \left\{ \frac{2}{3} - \frac{m}{3(1-\beta)I}, 0 \right\} \end{aligned} \quad (30)$$

which is positive for  $\beta < 1 - \frac{m}{2I} = \beta_S^*$ , and

$$n_S^* = \begin{cases} \frac{2[m+(1-\beta)I]}{3(2-\beta)} & \text{if } \theta_S \geq 0 \\ \frac{m}{2-\beta} & \text{if } \theta_S = 0 \end{cases} \quad (31)$$

It is easy to show that  $\frac{\partial \theta_S^*}{\partial \beta} \leq 0$  and that  $\frac{\partial n_S^*}{\partial \beta} > 0$ .

As a minimum of two equally-sized groups exists (as  $m < \frac{1}{2}$ ) and each of them pledges all potential profits as political compensation, the politician is indifferent between them. Finally, total income of the politician is

$$k_S^* = \begin{cases} \frac{2[(2-6\beta+3\beta^2)m^2 + (4-6\beta+3\beta^2)(1-\beta)mI + 2(1-\beta)^2 I^2]}{9(1-\beta)(2-\beta)^2} & \text{for } \theta_S^* > 0 \\ \frac{1-\beta}{(2-\beta)^2} m^2 & \text{for } \theta_S^* = 0 \end{cases} \quad (32)$$

which falls in  $\beta$ . ■

As social welfare increases in entry and becomes more valuable for the politician the higher is accountability  $\beta$ , entry  $n_S^*$  is increasing over  $\beta$ . On the other hand, funneling  $\theta_S^*$  falls with  $\beta$ , because the politician values income from funneling less, the political costs of default increase, and total lending  $n_S^*I$  increases. Greater lending allows for larger rents without raising  $\theta_S^*$ .

### 3.3 Private banking

Under  $P$  no efficiency costs are incurred. The politician controls entry by selecting the private bankers who then choose the identity of borrowers and set funneling  $\theta_P$ .

**Proposition 7** *Under private captured banking*

- (a) *entry  $n_P^*$  is increasing in political accountability  $\beta$ .*
- (b) *political compensation is smaller than firms' total income and are decreasing in  $\beta$ , as long as they are non zero.*
- (c) *funneling  $\theta_S^*$  is decreasing in political accountability  $\beta$ , as long as  $k_P^*$  is non zero.*

**Proof.** Funneling is determined by the private banker at  $t = 2$ :

$$\begin{aligned} & \max_{\theta_P} E[\pi_{e,P}] & (33) \\ \text{s.t.} & \theta \leq 1 \end{aligned}$$

such that

$$\theta_P = \frac{k_P + n_P(I - m + n_P)}{2n_PI}$$

Given  $\theta_P^*$ , entry and compensation are set at  $t = 1$  to maximise the utility of the politician:

$$\begin{aligned} & \max_{n_P, k_P} U_{P,P} & (34) \\ \text{s.t.} & k_P \leq n_P(m - n_P) + \theta_P n_P I \end{aligned}$$

Taking first order conditions yields

$$\begin{aligned} k_P = \max & \left\{ \frac{2(2 - 6\beta + 3\beta^2)m^2}{9(1 - \beta)(2 - \beta)^2} \right. & (35) \\ & \left. \frac{+2(4 - 6\beta + 3\beta^2)(1 - \beta)mI + 4(1 - \beta)^2 I^2}{9(1 - \beta)(2 - \beta)^2}, 0 \right\} \end{aligned}$$

which is positive for  $\beta < 1 - \frac{\sqrt{I^2+3m^2}-I}{3m} = \beta_P^*$ , with  $\beta_P^* > \beta_S^*$ . Substituting this back into  $\theta_P^*$  we find

$$\theta_P^* = \begin{cases} \frac{5}{6} - \frac{m}{6(1-\beta)I} & \text{if } k_P > 0 \\ \frac{4I - \sqrt{3m^2 + I^2}}{6I} & \text{if } k_P = 0 \end{cases} \quad (36)$$

and

$$n_P^* = \begin{cases} \frac{2[m+(1-\beta)I]}{3(2-\beta)} & \text{if } k_P > 0 \\ m - \frac{1}{3}(\sqrt{3m^2 + I^2} - I) & \text{if } k_P = 0 \end{cases} \quad (37)$$

Again, the politician's income is identical under  $S$  and  $P$  for  $\beta < \beta_S^*$  while the income under  $S$  is higher for  $\beta > \beta_S^*$ . As with exogenous entry it is the case that  $\frac{\partial k_P^*}{\partial \beta} \leq 0$ ,  $\frac{\partial \theta_P^*}{\partial \beta} < 0$  and  $\theta_P^* > \theta_S^*$ . When looking at entry we see that  $\frac{\partial n_P^*}{\partial \beta} > 0$  and that  $n_P^* = n_S^*$  for low  $\beta$  (when  $\theta_S^* > 0$ ), while  $n_P^* < n_S^*$  for high  $\beta$  (when  $\theta_S^* = 0$ ). ■

As for in the basic model the private bank owners collectively set relatively high funneling  $\theta_P^*$ , because they do not incorporate the negative effects of a bank default on social welfare. The banker's incentive to funnel strengthens over  $\beta$ . The reason is that entry  $n_P^*$  increases in accountability  $\beta$ , such that profits from production fall and total lending (potential income from funneling) rises.

For low  $\beta$ , entry  $n_P^* = n_S^*$ , while for high  $\beta$  we find that  $n_P^* < n_S^*$ . The reason is that under  $S$  the politician simply maximises rents whereas under  $P$  the politician also seeks to limit funneling. To limit funneling the politician needs to leave sufficient profits to entrepreneurs, leading to lower political compensation. By limiting entry  $n_P^*$  firm income increases such that there is a larger 'pie' to split with entrepreneurs. Because of the growing importance of social welfare  $n_P^*$  still increases over  $\beta$ , but at a slower rate than  $n_S^*$ .

### 3.4 Choice of bank governance

As in the basic model the politician compares his utility under state and private banking. In figures 6 till 9 we depict the politician's utility, entry and funneling under state and private bank control for  $m = \frac{1}{2}$ ,  $I = \frac{1}{3}$  and  $E = \frac{1}{10}$ .

Figure 6 shows that as for exogenous entry the politician prefers state banking  $S$  for low accountability  $\beta$  and private banking  $P$  for high  $\beta$ .

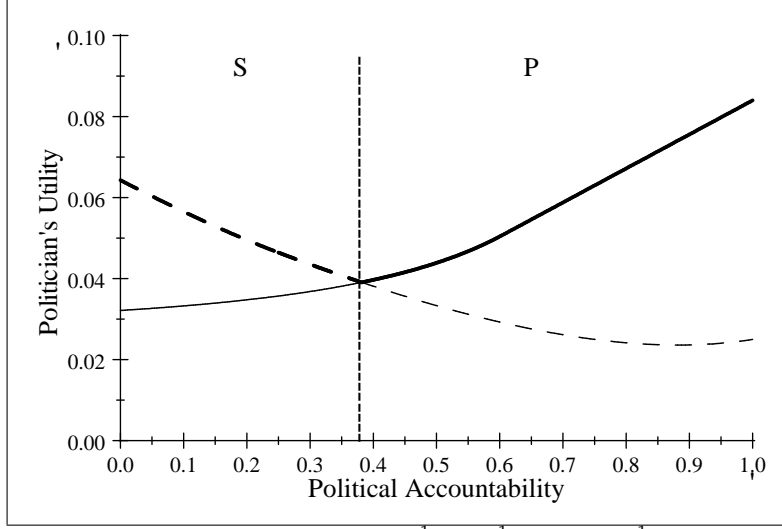


Figure 6: Utility for  $m = \frac{1}{2}, I = \frac{1}{3}$  and  $E = \frac{1}{10}$ .

**Proposition 8** *Comparing S and P*

- (a) entry under P is smaller or equal to entry under S.
- (b) the politician's private benefits are never lower under S than under P.
- (c) funneling is greater under P than under S

**Proof.** Using (31) and (37) we compute

$$n_S^* - n_P^* = \begin{cases} 0 & \text{for } \theta_S > 0 \wedge k_P > 0 \\ \frac{m-2(1-\beta)I}{3(2-\beta)} & \text{for } \theta_S = 0 \wedge k_P > 0 \\ \frac{1}{3}(\sqrt{3m^2 + I^2} - I) - \frac{(1-\beta)m}{2-\beta} & \text{for } \theta_S = 0 \wedge k_P = 0 \end{cases} \quad (38)$$

For  $\theta_S^* = 0 \wedge k_P^* > 0$  we know that  $\theta_S^* = \max\left\{\frac{2}{3} - \frac{m}{3(1-\beta)I}, 0\right\} = 0$ , such that  $\frac{2}{3} - \frac{m}{3(1-\beta)I} \leq 0 \Leftrightarrow \beta \geq \beta_S^*$ . Because  $\frac{\partial n_S^* - n_P^*}{\partial \beta} > 0$  and  $\frac{m-2(1-\beta_S)I}{3(2-\beta_S)} = 0$  we conclude that  $n_S - n_P \geq 0$ .

For  $\theta_S^* = 0 \wedge k_P^* = 0$ ,  $\beta \geq \beta_P^*$  and  $\frac{\partial n_S^* - n_P^*}{\partial \beta} > 0$  we derive from  $\frac{1}{3}(\sqrt{3m^2 + I^2} - I) - \frac{(1-\beta)m}{2-\beta} > 0$  that  $n_S^* - n_P^* > 0$ .

Comparing (32) and (35) results in (b) and comparing (30) and (36) results in (c). ■

The figures below respectively depict entry, political compensation and funneling for S and P.

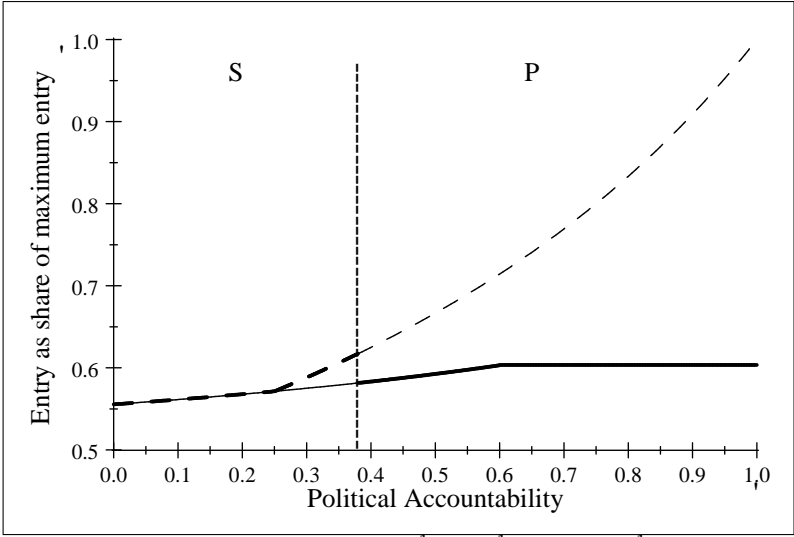


Figure 7: Entry for  $m = \frac{1}{2}, I = \frac{1}{3}$  and  $E = \frac{1}{10}$

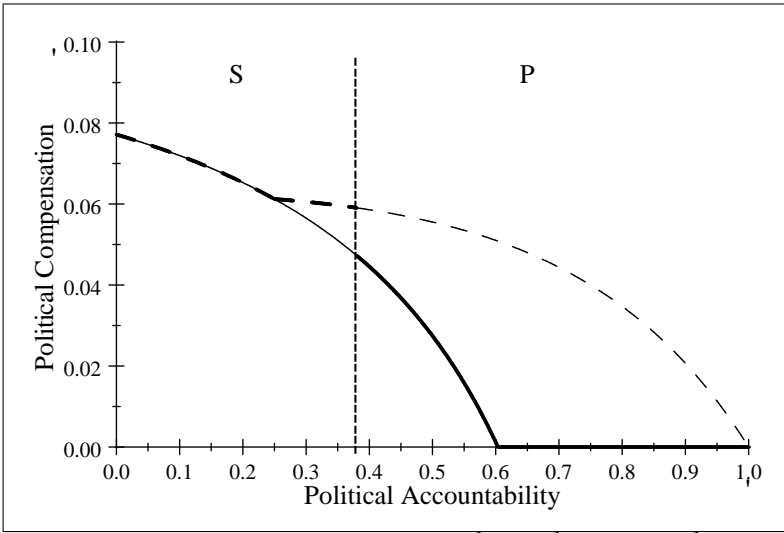


Figure 8: Politician's rents for  $m = \frac{1}{2}, I = \frac{1}{3}$  and  $E = \frac{1}{10}$ .



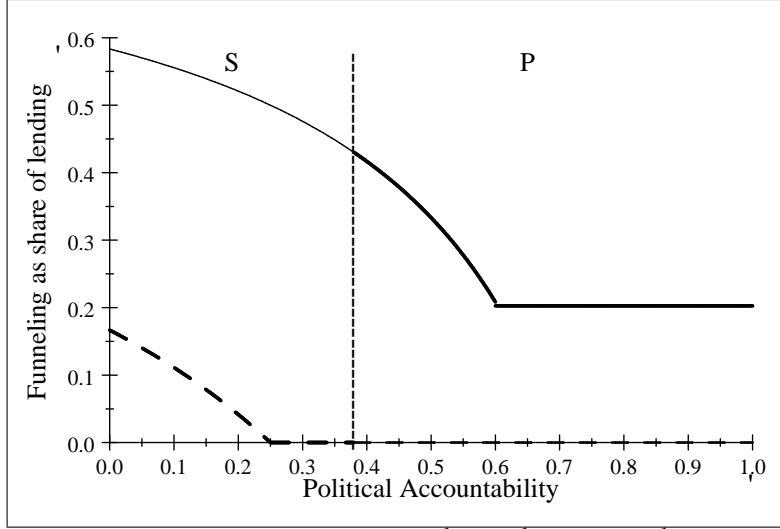


Figure 9: Funneling for  $m = \frac{1}{2}$ ,  $I = \frac{1}{3}$  and  $E = \frac{1}{10}$

Entry is lower under  $P$  because the politician needs entrepreneurs to generate sufficient income to limit funneling while protecting his political compensation. As a result, the transition from  $S$  to  $P$  can be accompanied by narrowing of finance and a drop in entry. This means that the banks emerging just after privatisation are captured by a relatively small group of entrepreneurs. Because these entrepreneurs funnel a large share of bank funds these captured banks are very fragile (see figure 8). Interestingly, entry endogenously stops increasing under  $P$  for  $\beta > \beta_P^*$  such that  $k_P^* = 0$ . The politician allows entrepreneurs to earn positive profits to limit  $\theta_P^*$ . Entrepreneurs thus enjoy limited competition to restrain them from undermining stability, even when accountability is very high.

Compensation stabilises under  $S$  for high  $\beta$  in figure 3 whereas they gradually fall to zero in figure 7 because endogenous entry  $n_S^*$  continuously increases over  $\beta$ . As before,  $k_P^*$  reaches zero for  $\beta > \beta_P^*$ . Because of increasing  $n_S^*$ , social welfare and bank funds  $n_S^*I$  increase over  $\beta$ . Therefore, the politician reduces  $\theta_S^*$  faster with endogenous entry.

## 4 Related literature and evidence

State influence has been declined steadily in history, just as political participation has increased. Early bank were directly state owned (such as the king's granaries in Mesopotamia and Egypt), and mints run royal monopolies. Private bank development developed only under limited government, when the monar-

chy lost absolute power (North and Weingast, 1986)<sup>11</sup>. Even then, the few chartered banks allowed were owned by influential individuals, often members of Parliament.<sup>12</sup>

State control of banks is higher in civil law countries, and those with less accountable political systems (La Porta, Lopez-de-Silanes, Shleifer, 2002; Bortolotti, Fantini and Siniscalco, 2003; Barth, Caprio and Levine, 2006). Politically connected firms receive larger loans from state banks, and pay comparable interest rates to non-connected firms even though less likely to repay (Khwaja and Mian, 2005; Faccio, 2006 ; Claessens, Feijen and Laeven 2007). A shift to private ownership creates private residual rights of control, reduces political interference and improve efficiency (Shleifer and Vishny, 1994; Perotti, 1995; Martimort, 2006). State banks are less profitable (Megginson, 2005).<sup>13</sup>

Yet political influence does not stop under private ownership. Special interests lobby to limit competition and influence access to finance (Kroszner and Strahan, 1999; Rajan and Zingales, 2003).<sup>14</sup> Recent evidence shows that access to finance broadens as a broader section of the population achieves political representation in panel studies across US states (Benmelech and Moskowitz 2007; Rajan and Ramcharan, 2007) and across countries and industries (Perotti and Volpin, 2007). Benmelech and Moskowitz (2007) exploit variation across time and across US states to find that restrictive voting laws are associated both with laws which restricts bank entry and credit to newer, riskier firms, as well as less inclusive incorporation laws. Less accountable countries have more restricted bank entry and more constrained access to finance (Barth, Caprio and Levine, 2006).

Shifts to private bank ownership, in particular to a few well connected owners, is often followed by crashes.<sup>15</sup> Major banking crises, such as in Chile (1981), Mexico (1994), Asia (1997) and Russia (1998) have been associated with massive default on connected lending by private banks, often family controlled (Perotti 2002; Claessens, Djankov and Klapper, 2003; La Porta, Lopez-de-Silanes and Zamarripa, 2003). The Mexican experience shows higher non-repayment rates for connected loans in newly privatised banks (Gomberg and Maurer, 2005). In many middle income countries such as Russia, Mexico, Russia and Korea, private control over the banking system was established in a phase of progressive

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<sup>11</sup>Small private banks set up as partnerships existed for a long time in cities run by merchants.

<sup>12</sup>State banks remain important nowadays, not just in developing countries (La Porta, Lopez-de-Silanes, Shleifer, 2002), and have become more frequent in developed economies as a result of bailouts of risk taking private banks.

<sup>13</sup>This result is confirmed for developing countries (Mian, 2003; Micco, Panizza and Yanez, 2007), Western Europe (Iannotta, Nocera and Sironi, 2007), Eastern Europe (Bonin, Hasan and Wachtel, 2005; Fries and Taci, 2005), Turkey (Baum, Caglayan and Talavera, 2009), East Asia (Cornett, Guo, Khaksari and Tehranian, 2009) and Latin America (Berger, Clarke, Cull, Klapper and Udell, 2005).

<sup>14</sup>Insiders may also lobby to weaken minority investor rights to protect private benefits (Bebchuk and Neeman, 2009), which has the effect of reducing access to finance for other firms.

<sup>15</sup>This prediction presumes that income is correlated with institutional quality such as accountability.

democratization, but often without strengthening the regulatory framework (for an early assessment see De Luna-Martinez, 2000).<sup>16</sup> Our explanation is that bank privatization tends to happen at an institutional stage when regulatory capture is likely.<sup>17</sup>

During the Asian crisis, banks connected to industrial groups or influential families continued to lend to connected firms (Claessens, Djankov and Klapper, 2003) which were subsequently to default (Bongini, Claessens and Ferri, 2001). In Korea, the crisis revealed massive concentration of lending risk in chaebol business groups (Campbell and Keys, 2002). In China police arrests of corrupt bankers results in lower lending to connected firms, which lose market value as a result (Fan, Rui, Zhao, 2008).

The increased instability in the transition to private bank ownership should be put in perspective. In the model the increased risk arise when control is sold to small groups of owners. Bank privatisation performed best in OECD-countries where it led to widely held banks, and in transition economies whenever banks were sold to foreign entities (Megginson, 2005). In general, consumption volatility tends to falls after financial liberalisation, but the result is reversed in countries with worse political institutions (Bekaert, Harvey and Lundblad, 2006).

Financial stability does not appear correlated with measures of tight regulation or state ownership of banks. Macroeconomic stability appears to be better in countries with better political institutions, even after controlling for policy choices (Acemoglu, Johnson, Robinson and Thaicharoen, 2003).

## 4.1 Some simple statistics

Direct evidence for our results comes from Morck, Yavuz and Yeung (2009), who study the relationship between instability and bank ownership. They find that the share of nonperforming loans and the probability of a major banking crisis increase in the share of family owned banks, while the share of state banks is not significant.<sup>18</sup> This is surprising as endemic losses are common in state banks, yet large banking crises are not more common in state bank dominated systems.<sup>19</sup>

While further empirical validation of the model is beyond the intent and scope of this paper, some simple statistics are suggestive. Graphs 1,2 and 3

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<sup>16</sup>In Chile, politically connected business groups (grupos) captured control of privatized banks with borrowed money and engaged in self lending, causing a major bank collapse and renationalisation in the early 1980s in response to higher US rates. A very similar experience occurred in Mexico in the early 1990s and in Russia in 1998.

<sup>17</sup>Liberalisation is more likely to be followed by banking crises in countries exhibiting poor transparency and corruption (Mehrez and Kaufmann, 2000), and weak regulatory institutions (Demirgüç-Kunt and Detragiache, 1999).

<sup>18</sup>They also find that the quality of capital allocation is decreasing in both the share of family and state owned banks.

<sup>19</sup>A lower incidence of distress for state banks may reflect hidden subsidies. Yet large scale crises cannot be easily be absorbed without economic disruption.

illustrate the share of bank assets controlled by state, family and independent banks as a function of political accountability, using bank ownership data from Morck, Yavuz and Yeung (2009) (see table 1 for summary statistics).<sup>20</sup> To measure the effect of intermediate political accountability, we construct squared variables around the means of the independent variables for political accountability. These are average past scores of *Voice & Accountability*, *Polity2-score* and *Press Freedom*. Table 2 offers an overview of all variables

State banks appear most common in low accountability countries, family banks dominate at intermediate levels, while diffusely held banks dominate in high accountability countries. Following our approach, we interpret family banks as captured by insiders, and independent banks as related to a broader coalition of interests (corresponding in the model to a high  $n$ ).

In table 3 a simple OLS regression confirms a significant relationship between accountability and bank control when controlling for *legal origin*, an established factor for both state ownership and corporate ownership concentration (La Porta et al, 2008).

## 5 Conclusion

This paper endogenises the political choice over state or private control of banks in a context when regulation is ineffective. Control over banks allow to channel loans to preferred borrowers and to capture resources by negotiating its terms. We show that bank control affects the allocation of finance, product market competition and the incidence of banking crises.

Our main results is that instability is not monotonic in accountability, even though this decreases with the chance of a crisis. The political choice is complex because of conflicting incentives it seeks to address. Social welfare includes entry and bank efficiency next to stability; lobby groups seek private bank control and limited entry (Kroszner and Strahan, 1999; Rajan and Zingales, 2003).

State control of banks allows politicians to capture large rents, but are inefficient. As accountability increases, this inefficiency cost, or an increasing legal risk associated with bribing, induce politicians to allow private bank control.

At the transition point to private control, banks are captured by small numbers of entrepreneurs. Private bankers do not fully incorporate the social costs of default, so the risk of default jump. As political accountability rises further, the politician seeks to limit funneling by leaving more rents to solvent banks.

In the general case when welfare increases in entry, bank ownership becomes more diffused with accountability. This reduces bank solvency incentives, so if regulation cannot be tightened the optimal amount of access may need to be contained to maintain financial instability.

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<sup>20</sup>Morck, Yavuz and Yeung (2009) measure ultimate ownership and voting rights for the 10 largest listed and unlisted banks in 44 countries, assuming that family members and state entities act in concert.

The approach offers various testable implications. It highlights how countries may shift to private banks at a stage in institutional development when private capture is likely. The shift may thus lead to narrower access to finance and a higher incidence of banking crises due to related lending and excess risk taking. Inadequate capitalisation and legislation allowed opportunistic lending, as in Mexico prior to the 1994 or in Russia prior to 1998.

A policy implications is that pushing countries to privatise banks even before they would naturally choose to do so is counterproductive as regulatory capture dominates in such an institutional environment, so that a shift of control to the private sector would lead to an increase in risk taking and instability.

An important question we do not address is the impact of political institutions on the potential stock of lending. North and Weingast (1989) highlights that financial development requires a measure of political accountability. La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998), show that financial market development depends on legal guarantees for investors. In our model, as the executive becomes increasingly constrained, private rents stop being fully expropriated, and increase with accountability along with the volume of intermediation, as broader private bank ownership leads to more entry and thus more loans.

We intend to pursue further, not least in the light of the recent crisis, the question whether more democratic societies with higher competition face reduced private incentives for solvency, as in the classic trade off between charter value and bank stability. A research question is whether financial stability in highly developed democracies requires less competition. A less normative question is how well risk controlling regulation may resist capture when high entry implies that solvency incentives are poor.

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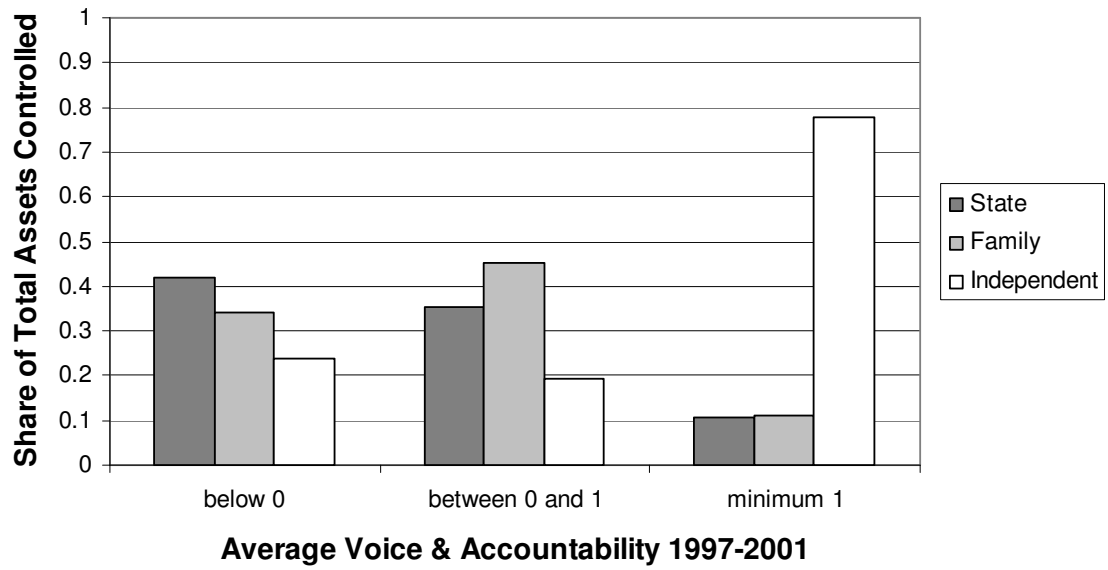
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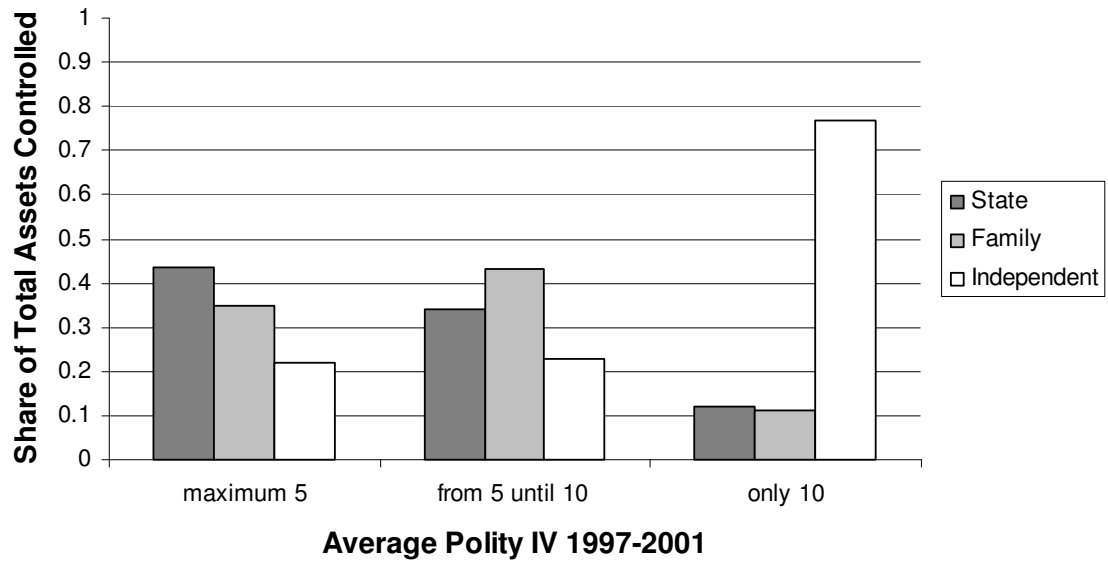
## Appendix: List of variables

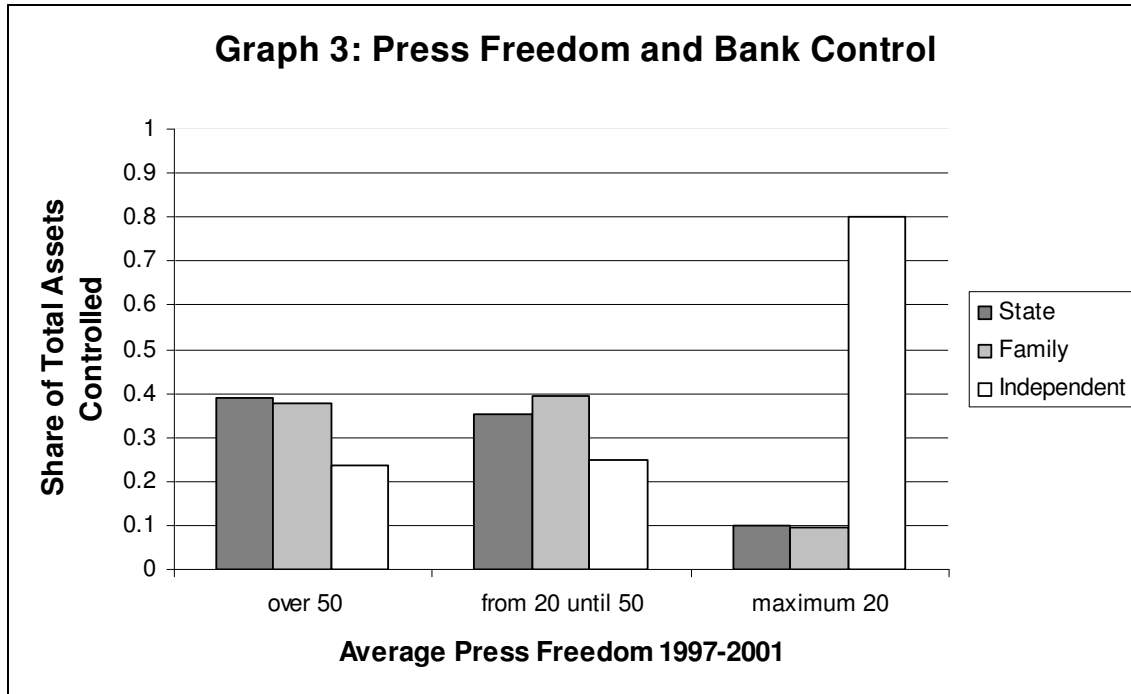
- $a$  = strength of demand
- $\beta$  = political accountability
- $c$  = subscript denoting consumer(s)
- $e$  = subscript for entrepreneur(s)
- $\varepsilon$  = shock
- $E$  = inefficiency cost of state banking
- $f$  = price of the final good
- $G$  = governance structure (state banking  $S$  or private banking  $P$ )
- $i$  = subscript denoting citizen(s)
- $I$  = initial investment required to start a firm
- $k$  = political contributions
- $L$  = fixed cost of retrieving loans in case of bank failure
- $m$  = maximum entry or share of entrepreneurs in total population (firm profits are zero)
- $n$  = entry or share of entrepreneurs in total population
- $p$  = subscript denoting the politician
- $P$  = private banking (also as subscript)
- $\pi$  = profits
- $S$  = state banking (also as subscript)
- $\theta$  = funneling as share of total lending
- $U$  = utility
- $\omega$  = endowment for consumption per citizen
- $x_i$  = consumption of the numeraire good by citizen  $i$
- $y_i$  = consumption of the final good by citizen  $i$

**Graph 1: Voice & Accountability and Bank Control**



**Graph 2: Polity IV and Bank Control**





Share of bank assets controlled by state, family and independent banks grouped for levels of accountability, measured by Voice & Accountability, Polity IV-score and Press Freedom (table 1).

<b>Table 1. Variable Description</b>			
	<b>Variable</b>	<b>Source</b>	<b>Description</b>
<b>Panel A. Dependent Variable</b>			
1	Bank Control	Morck, Yavuz and Yeung (2009)	Extension of data from Caprio, Laeven and Levine (2007) who trace back the ultimate ownership and voting rights of the 10 largest listed banks in 44 countries at the end of 2001. The new data includes unlisted banks and reclassify banks as state-controlled, a family-controlled or independent.
<b>Panel B. Explanatory Variable</b>			
For every political variable we take the average over the years 1997-2001, because transitions in bank ownership take time (for Voice & Accountability only two datapoints, in 1997-1998 and 2000-2001).			
2	Voice & Accountability	Kaufmann, Kraay, Mastruzzi (2008)	Combination of democratic accountability (how response the government is to its people) and the chance of military intervention.
3	Polity2	Marshall, Jaggers and Gurr	Combination of measures of autocracy and democracy in a given country, from -10 to 10. See <a href="http://www.systemicpeace.org/polity/polity4.htm">http://www.systemicpeace.org/polity/polity4.htm</a>
4	Press Freedom	Freedom House	Measure based on influence on media content of (i) laws and regulations, (ii) political pressures and (iii) economic influences, and (iv) repressive actions such as murders of journalists. Note: lower values imply higher press freedom See <a href="http://www.freedomhouse.org/template.cfm?page=274">http://www.freedomhouse.org/template.cfm?page=274</a>
<b>Panel C. Control Variables</b>			
5	Legal Origin	La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999)	Division of countries in English, French, German, Scandinavian and Socialist legal origin.

<b>Table 2. Descriptive Statistics</b>						
<b>Sample: is 44 countries from Morck, Yavuz and Yeung (2009)</b>						
Hong Kong is always dropped because it became part of China again in 1999, leaving 43 observations.						
		<b>Mean</b>	<b>Median</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Panel A. Bank Control Indexes</b>						
1	<i>State</i>	0.27	0.21	0.32	0.00	1.00
2	<i>Family</i>	0.28	0.14	0.31	0.00	1.00
3	<i>Independent</i>	0.43	0.41	0.39	0.00	1.00
<b>Panel B. Political Accountability</b>						
4	<i>Voice &amp; Accountability</i>	0.56	0.66	0.85	-1.05	1.60
5	<i>Polity2</i>	6.93	9.00	4.53	-6.00	10.00
6	<i>Press Freedom</i>	33.52	27.60	20.50	5.00	69.20
<b>Panel C. Controls</b>						
7	<i>English legal origin</i>	0.35	0.00	0.48	0.00	1.00
8	<i>French legal origin</i>	0.42	0.00	0.50	0.00	1.00
9	<i>Scandinavian legal origin</i>	0.09	0.00	0.29	0.00	1.00
10	<i>German legal origin</i>	0.14	0.00	0.35	0.00	1.00

**TABLE 3**

**Political Accountability and Bank Control: Ordinary Least Squares**

The table shows the results of cross-country OLS-regressions with robust standard errors. Explanatory variables are in rows, with a column for each of the three political variables. The dependent variables 'State', 'Family' and 'Independent' refer to the fraction of votes in the ten largest banks in a country controlled by respectively the state, a family and independent investors at the end of 2001. The omitted category for legal origin is German legal origin. Other variables are as given in Table 1. P-values are in parentheses.

	Dependent variable: 'State'			Dependent variable: 'Family'			Dependent variable: 'Independent'		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Voice & Account.	Polity IV	Press Freedom	Voice & Account.	Polity IV	Press Freedom	Voice & Account.	Polity IV	Press Freedom
Political Variable	-0.204*** (0.004)	-0.025 (0.108)	0.007** (0.022)	0.164*** (0.002)	0.039** (0.024)	-0.002*** (0.692)	0.251*** (0.002)	0.030* (0.054)	-0.010*** (0.022)
Political Variable^2				-0.313*** (0.000)	-0.007** (0.015)	-0.000* (0.095)			
English legal origin	-0.150 (0.188)	-0.107 (0.446)	-0.164 (0.185)	0.202* (0.073)	0.138 (0.146)	0.090 (0.315)	-0.006 (0.965)	-0.063 (0.705)	0.041 (0.791)
French legal origin	-0.174 (0.129)	-0.090 (0.438)	-0.170 (0.152)	0.276*** (0.009)	0.262*** (0.003)	0.193* (0.061)	-0.124 (0.401)	-0.231 (0.127)	-0.097 (0.527)
Scandinavian legal origin	-0.093 (0.481)	-0.177 (0.204)	0.138 (0.330)	0.289** (0.028)	0.050 (0.545)	0.130 (0.250)	0.065 (0.665)	0.168 (0.277)	0.109 (0.490)
Constant	0.519*** (0.000)	0.536*** (0.004)	0.177* (0.078)	0.295*** (0.007)	0.292* (0.083)	0.411 (0.131)	0.358** (0.012)	0.346* (0.067)	0.803*** (0.000)
N	43	43	43	43	43	43	43	43	43
R-squared	0.2585	0.1428	0.1755	0.5022	0.3097	0.2644	0.4090	0.2838	0.3784