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### The politics of entry

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## Bank ownership and financial stability

### 3.1 Introduction

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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 the politicians control the allocation of 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 to set their terms. The assignment of control is the outcome of an explicit lobbying model, which offers predictions on state versus private bank control, the dispersion of private ownership and financial instability. These depend

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<sup>1</sup>Lobbying by industry has been cited as critical to weaken capital requirements under the Basel II regulatory process. Political pressure supported the massive expansion of subprime lending in the US (Igan, Mishra and Tressel, 2010; Rajan, 2010).

critically on political structure, and specifically political accountability.<sup>2</sup>

Our most interesting result is that instability does not decrease with improved political accountability, offering a complex view of institutional determinants of financial instability. The relationship is made complex by the shift of incentives in the transition to private bank ownership, and by the ability of special interests to lobby to limit competition, seeking to influence access to finance (Kroszner and Strahan, 1999; Rajan and Zingales, 2003).

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, 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.<sup>3</sup> 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 disrupt 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 inefficiency by ceding bank control to an interest group, but losing direct influence over bank

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<sup>2</sup>Accountability may be interpreted as the degree to which politicians need to satisfy citizen interests to remain in power. In a simple reduced form, it is the relative preference of politicians for social welfare over bribes, shaped by political institutions. Indeed, lobbying influence is constrained by electoral concerns and media scrutiny (Besley, Burgess and Prat, 2006; Perotti and Volpin, 2007).

<sup>3</sup>State bank inefficiencies are paid for by citizens through taxes and may arise due to for example overemployment (Cornett, Guo, Khaksari and Tehranian, 2009).

stability. The trade off is between private bank efficiency and greater risk taking, as captured private lending does not fully 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 leads to a jump in bank default risk, as private loans allow connected borrowers to benefit from funneling in the solvent state. As accountability increases further, the politician may contain funneling only by leaving more rents to the private sector. Private sector rents over political rents increase monotonically with accountability.

Our main result is that instability jumps discretely 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 extension examines the choice over access to finance, endogenising the optimal size of lobbies. At the transition points, a small lobby secure control over the bank. As accountability rises, politicians seek larger lobbies to ensure higher entry, lower prices and higher social welfare, and bank ownership becomes more diffused. However, lower profits from higher entry increase risk incentives, a result reflected in the banking literature on charter value and risk taking. Interestingly, a high

accountability regime which produce broad access to finance also builds up its own cause of instability.

Our approach has clear limitations. To emphasize control issues, we rule out risk-controlling regulation. The assumption is stark, though in practice bankers enjoy broad discretion in lending choices. A specific feature of the model is its focus on bank default arising from aggregate financial shocks, rather than firm-level default to allow tractability. So its focus is on incentives for aggregate risk-taking, to describe large banking crises rather than risky lending by an individual bank. We do not seek to model bank competition, though it is natural to interpret concentrated bank ownership as a measure of bank entry. Finally, we abstract from depositor-based instability by imposing full deposit insurance. Our model also ignores issues such as the relative efficiency of entrants.

The paper proceeds as follows. Section 2 discusses existing evidence, section 3 presents the model, section 4 solves for the political choice over bank governance and financial instability, and section 5 looks at implications for access to finance. Section 6 illustrates some evidence supporting the predictions of the model, and section 7 concludes.

### 3.2 Evidence

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What explains the balance of state and private control over finance, and the concentration of private control?

State influence has been declined steadily in history. Early bank were directly state owned (such as the king's granaries in Mesopotamia and Egypt), and mints run royal monopolies. Small private banks set up as partnerships existed for a long time in cities run by merchants, but in nation states they were allowed to incorporate only in the XIX century, limiting their scale. In fact, private bank licensing took place only once the monarchy lost its absolute power (North and Weingast, 1989).

For many decades, banks were owned by politically influential individuals, often members of Parliament.

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. There is ample evidence of lower profitability of state banks (Megginson, 2005) which have higher personnel expense in East Asia (Cornett, Guo, Khaksari and Tehranian, 2009) and higher overall costs around the globe (Micco, Panizza and Yanez, 2007) and in Eastern Europe (Fries and Taci, 2005). Despite their high cost, politicians may support state banks as they can directly influence their lending. State banks favour politically connected firms, which receive larger loans and pay comparable interest rates to non-connected firms even though they are less likely to repay (Khwaja and Mian, 2005; Faccio, 2006 ; Claessens, Feijen and Laeven 2007), and increase during election years in developing countries (Dinc, 2005; Micco, Panizza and Yanez, 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). Yet the privatization decision itself is an endogenous political choice, and political influence does not stop under private ownership. When banks are privately owned, political choices on regulation still influence access to finance and stability indirectly. Special interests lobby to limit competition, capture access to finance and undermine newcomers (Kroszner and Strahan, 1999; Rajan and Zingales, 2003).<sup>4</sup> Politicians influence the allocation of finance, via regulation or financial guarantees, reinforcing risk taking incentives for private owners. Mian, Sufi and Trebbi (2010) investigate representatives' voting on the American Housing Rescue and Foreclosure Prevention Act and the Emergency Economic Stabilization Act of 2008. They show that voting depends on mortgage related defaults in their

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<sup>4</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.

constituency and campaign contributions from the financial services industry. This supports our setup in which the politician's utility depends on both social welfare and political contributions.

The model implies that shifts to private banks, and in particular with concentrated ownership, may be followed by crashes. Financial liberalisation has indeed often preceded financial instability and banking crises (Caprio and Klingebiel, 1996; Kaminsky and Reinhart, 1999; Weller, 2001). Interestingly, middle income developing countries in a phase of liberalisation, such as South East Asia, Chile, Mexico, Argentina, Russia, are those most affected by disruptive banking crises, at least until recently.<sup>5</sup> Major banking crises, such as in Chile (1981), Mexico (1994), East 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). In developing economies, banks controlled by industrial groups seem to be most risky, local independent banks less so, and foreign-owned banks are the least risky (Boubakri, Cosset, Fischer and Guedami, 2005).<sup>6</sup>

We contribute some illustrative evidence that state banks are most common in low accountability countries, family banks dominate at intermediate levels of accountability, while diffusely held banks dominate in high accountability countries. Changes in bank ownership in for example Hungary and Russia after the collapse of the Soviet Union are also consistent with our model. In Hungary minority stakes in state banks were sold strategically to foreign banks and many shares were simply put up for sale in an IPO. By contrast, privatisation of Russian banks occurred informally and was led by banks' management who determined future ownership structures. As a result, over the 1994-2001 period average domestic private and

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<sup>5</sup>Here we presume that income is correlated with institutional quality such as accountability.

<sup>6</sup>A careful study of the Mexican experience shows higher non-repayment rates for connected loans in privatised banks (La Porta, Lopez and Zamarripa, 2003; Gomberg and Maurer, 2005).

foreign ownership were respectively 5.8 and 77.0 percent in Hungary and 76.5 and 10.2 percent in Russia (data from EBRD). After privatisation lending was at arm's length in Hungary. In Russia however there was almost exclusive connected lending to enterprises in which the given bank had a stake. Together with fiscal deficits and a too high fixed exchange rate this connected lending contributed to the severe Russian crisis in 1998. Interestingly, during the 1990s political accountability increased much more dramatically in Hungary than Russia. Over the same 1994-2001 period, Press Freedom from Freedom House averaged at 55 in Russia (54 in Jordan and 59 in Peru) and 31 in Hungary (29 in Greece and Israel). This example suggests that greater political accountability induced Hungarian politicians to create independent private banks whereas the privatisation process and the ensuing private banks were captured in Russia.

Direct evidence for our results is provided by Morck, Yavuz and Yeung (2009), who 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>7</sup> This may be surprising as endemic losses are common in state banks, yet large banking crises are not more common in state bank dominated systems.<sup>8</sup> For a broad overview of the literature on politics and finance, see Haber and Perotti (2009).

Commentators stress that 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 democratization, but often without strengthening the regulatory framework (De Luna-Martinez, 2000). 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

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<sup>7</sup>They also find that the quality of capital allocation is decreasing in both the share of family and state owned banks.

<sup>8</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.

1980s in response to higher US rates. A very similar experience occurred in Mexico in the early 1990s and in Russia in 1998. During the Asian crisis, financial institutions 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). It is telling that in China, arrests of corrupt bankers results in lower lending to connected firms, which lost market value as a result (Fan, Rui and Zhao, 2008). Our explanation is that bank privatization tends to happen at an institutional stage when regulatory capture is likely.

Liberalisation is more likely to be followed by banking crises in countries exhibiting poor transparency (Mehrez and Kaufmann, 2000), weak supervision (Noy, 2004) and weak regulatory institutions (Demirgüç-Kunt and Detragiache, 1999). This result should be put in perspective, as consumption volatility often falls in response to financial liberalisation, although the result is reversed in countries with worse political institutions (Bekaert, Harvey and Lundblad, 2006). A survey on bank privatisation suggests that it performed best in OECD-countries and, whenever banks were sold to foreign entities in transition economies (Megginson, 2005).

More accountable political institutions support financial stability, even after controlling for policy choices (Acemoglu, Johnson, Robinson and Thaicharoen, 2003). Recent work posits that, starting from financial repression, early steps in liberalisation make banking crises more likely while high degrees of liberalisation reverse this effect. The effect is strongest for behavioural liberalisation (removal of credit controls, high reserve requirements and interest rate controls) which is highly correlated with competitive liberalisation (removal of entry barriers, restrictions on banks' activities and restrictions on cross-border capital flows). In this work the effect of privatisation itself appears to be weak, possibly due to the lack of differentiation

between captured and diffusely held private banks (Angkinand, Sawangngoenyung and Wihlborg, 2010).

On the issue of entry, the recent political economy literature highlights how accountability increases entry into banking and enhances access to finance (Rajan and Zingales, 2003; Barth, Caprio and Levine, 2006). and diffused media circulation stimulate competition (Perotti and Volpin, 2007). A remarkable historical analysis of US states regulation shows it has been more favorable to access to finance and entry in states with better suffrage rights (Benmelech and Moskowitz, 2007).

To our knowledge our paper is the first to endogenously model bank control and to investigate the effects of bank control on financial stability and entry in the product market. In related work, Daniel and Jones (2007) model financial liberalisation as a simple reduction in the cost of capital. They show that such liberalization induces banks to finance more risky projects with lower returns, such that banks become more vulnerable and the chance of a crisis increases. Debande and Friebe (2004) study privatisation and model a similar political trade off between controlling a firm and its employment through state ownership and potentially profiting from stronger managerial incentives to restructure in private firms.

### 3.3 Model

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A single politician chooses bank control  $C$ , being either state control  $S$  or private control  $P$  of a single bank. State ownership allows the politician to assign and set terms on individual loans, but imposes an inefficiency cost  $E > 0$  borne by taxpayers. Alternatively, the politician can transfer bank control to the interest group who then effectuates lending. We use a setup in which a single lobby group represents all potential entrepreneurs (as in Perotti and Volpin; 2007) and seeks to grab control of privatised banks. Our results would be equivalent if the private surplus were divided between bankers and entrepreneurs forming 'the elite'. There

is a unit mass of citizens. Each citizen  $i$  can become entrepreneur  $e$  and produce a single unit of final good by investing an amount  $I$ , resulting in a profit of  $\pi_{e,C}$ . We define  $n_C$  as the fraction of citizens who receive a loan and become entrepreneur  $e$ , while the residual set  $1 - n_C$  remain consumer  $c$ . We first assume  $n_C$  to be exogenous and endogenise it in an extension.

The loans are secured by a pledge on the investment good  $I$ , being the only assets available. 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 diverted, reducing the loan repayment value to  $(1 - \theta_C)I$ . The diverted funds  $\theta_C I$  are added to the income of the entrepreneur involved.

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  $\theta_C$ . The ease with which to seize collateral effectively determines the value of the bank's assets. Higher funneling reduces the value of the bank's loan portfolio, weakens its balance sheet and thus lowers its resilience to the exogenous shock. Upon distress, the bank recalls all loans. As this disrupts production, there is no output and no contributions are paid to the politician. In our model 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 by the same lump-sum tax on all citizens.

### 3.3.1 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 (under  $P$ ) to  $n_C$  citizens in exchange for compensation  $k_C$ .

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 firmly 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>9</sup>

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

At  $t = 5$  citizens receive their endowment  $\omega$ , incur inefficiency cost  $E$  under state control, buy the final good (if available) and spend their remaining income on the numeraire good. Deposit insurance covers any bank shortfall. Entrepreneurs make their loan payment  $(1 - \theta_C)I$  to the bank and pay promised political contributions  $k_C$  is paid.

### 3.3.2 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 governance structure  $C = \{S, P\}$  of

$$U_{i,C} = x_{i,C} + ay_i - \frac{1}{2}y_i^2 \text{ for } i = c, e \quad (3.1)$$

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>10</sup> Individual income equals a constant endowment  $\omega$  plus any firm profits  $\pi_{e,C}$ . Therefore, in case of solvency the average citizen's consumption of the numeraire good under  $S$  is  $x_{i,S} = \omega - y_i f + n_C \pi_{e,S} - E - \theta_S n_S I$ , where  $f$  is the price of the final good. In case of default it is

<sup>9</sup>Note that because production is disrupted and assets repossessed, the potential diversion  $\theta_C$  does not take place.

<sup>10</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.

reduced to  $x_{i,S} = \omega - E - l = U_{i,S}$ . The consumption of the numeraire good under  $P$  has the same functional form, only without inefficiency costs  $E$ .

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

$$s_C = (1 - n_C)E[U_{c,C}] + n_C E[U_{e,C}] + E[\pi_{p,C}] \quad (3.2)$$

where  $\pi_{p,C}$  are the expected political contributions given governance structure  $C = \{S, P\}$ . We use expectations because banks may default and production be interrupted. Other social welfare functions will not change the paper's main results as long as  $\frac{\partial s_C}{\partial n_C} > 0$  and  $\frac{\partial \pi_{p,C}}{\partial n_C} < 0$ .

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  $1-\beta$ ):

$$U_{p,C} = \beta(s_C - \omega) + (1 - \beta)\pi_{p,C} \quad (3.3)$$

where  $s_C$  and Social welfare does not include endowment  $\omega$  as it is consumed independent of political choices or the production level.

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 (3.1), (3.3) and (3.2).

### 3.3.3 Product market equilibrium

Maximising (3.1) 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  $f - I$ . 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  $\omega \geq \max\{\frac{1}{2}m(a - \frac{1}{2}m) + E, mI + E\}$ . This condition ensures that the endowment is large enough to fund the costs of state banks  $E$  as well as consumers' demand for final goods costing a maximum of  $\frac{1}{2}m(a - \frac{1}{2}m)$  (if entry is minimal and equal to  $\frac{1}{2}m$  and price equals  $a - \frac{1}{2}m$ ) in case of solvency *or* maximum costs of deposit insurance  $mI$  in case bank default.

### 3.3.3.1 Consumers

After substituting the result above in (3.1) consumer's utility under  $S$  equals

$$U_{c,S} = \begin{cases} \omega + \frac{1}{2}(n_S)^2 - E - \theta_S n_S I & \text{when the bank is solvent} \\ \omega - E - l & \text{when the bank defaults} \end{cases} \quad (3.4)$$

where  $\frac{1}{2}(n_S)^2$  is the social benefit of consuming the final good,  $E$  the fiscal cost of state bank inefficiency and  $\theta_S n_S I$  the cost of deposit insurance due to resource diversion. The expected utility of a consumer under  $S$  is

$$E[U_{c,S}] = \omega + (1 - \theta_S) \frac{1}{2}(n_S)^2 - E - \theta_S l - (1 - \theta_S) \theta_S n_S I \quad (3.5)$$

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

$$U_{c,P} = \begin{cases} \omega + \frac{1}{2}(n_P)^2 - \theta_P n_P I & \text{when the bank is solvent} \\ \omega - l & \text{when the bank defaults} \end{cases} \quad (3.6)$$

with expectation

$$E[U_{c,P}] = \omega + (1 - \theta_P) \frac{1}{2}(n_P)^2 - \theta_P l - \theta_P (1 - \theta_P) n_P I \quad (3.7)$$

### 3.3.3.2 Entrepreneurs

An entrepreneur makes profits of

$$\pi_{e,C} = \begin{cases} f - I - \frac{k_C}{n_C} + \theta_C I & \text{when the bank is solvent} \\ 0 & \text{when the bank defaults} \end{cases} \quad (3.8)$$

where  $\frac{k_C}{n_C}$  is the political compensation paid per entrepreneur. Using  $f = a - n$  and  $m = a - I$ , expected profits per entrepreneur are

$$E[\pi_{e,C}] = (1 - \theta_C) \left( m - n_C - \frac{k_C}{n_C} + \theta_C I \right) \quad (3.9)$$

Because entrepreneurs simply spend their firm's profits on the numeraire good, their utility is

$$U_{e,C} = U_{c,C} + \pi_{e,C} \quad (3.10)$$

### 3.3.3.3 Politician

The politician  $p$  gets private benefits of

$$\pi_{p,C} = \begin{cases} k_C & \text{when the bank is solvent} \\ 0 & \text{when the bank defaults} \end{cases} \quad (3.11)$$

such that

$$E[\pi_{p,C}] = (1 - \theta_C) k_C \quad (3.12)$$

### 3.3.3.4 Social welfare

Using (3.5), (3.9) and (3.12) social welfare is as in (3.2) becomes

$$E[s_S] = \omega + (1 - \theta_S) \left[ \frac{1}{2}(n_S)^2 + n_S(m - n_S) \right] - E - \theta_S l \quad (3.13)$$

under  $S$  and using (3.7), (3.9) and (3.12) we find

$$E[s_P] = \omega + (1 - \theta_P) \left[ \frac{1}{2}(n_P)^2 + n_P(m - n_P) \right] - \theta_P l \quad (3.14)$$

under  $P$ .

### 3.3.3.5 Politician's utility

From (3.3), (3.12) and (3.13) we find the politician's utility under  $S$

$$E[U_{p,S}] = (1 - \theta_S) \left\{ \beta \left[ \frac{1}{2}(n_S)^2 + n_S(m - n_S) \right] + (1 - \beta)k_S \right\} - \beta(E - \theta_S l) \quad (3.15)$$

Under  $P$  we require (3.3), (3.12) and (3.14) to find

$$E[U_{p,P}] = (1 - \theta_P) \left\{ \beta \left[ \frac{1}{2}(n_P)^2 + n_P(m - n_P) \right] + (1 - \beta)k_P \right\} - \beta\theta_P l \quad (3.16)$$

## 3.4 Bank control and instability

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We compute the choice of funneling  $\theta_C$  at  $t = 2$  and compensation  $k_C$  at  $t = 1$  for state and private banking. In this section we assume that entry is exogenous and set  $n_S = n_P = n$ .

### 3.4.1 State banking

Under state banking the politician sets funneling  $\theta_S$  directly. Therefore, the politician does not need to provide incentives to private bank owners and 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>11</sup>

**Proposition 6.** *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

$$\begin{aligned} & \max_{\theta_S, k_S} U_{p,S} \\ & \text{s.t. } 0 \leq k_S \leq n(m - n) + \theta_S nI \\ & \quad 0 \leq \theta_S \leq 1 \end{aligned} \tag{3.17}$$

which yields

$$k_S^* = n(m - n) + \theta_S nI \tag{3.18}$$

and

$$\theta_S^* = \max \left\{ \frac{1}{2} - \frac{n[2m - (2 - \beta)n] + 2\beta l}{4(1 - \beta)nI}, 0 \right\} \tag{3.19}$$

Funneling  $\theta_S^*$  satisfies  $\frac{\partial \theta_S^*}{\partial \beta} \leq 0$ ,  $\frac{\partial \theta_S^*}{\partial I} > 0$ ,  $\frac{\partial \theta_S^*}{\partial m} \leq 0$ ,  $\frac{\partial \theta_S^*}{\partial n} \geq 0$  and  $\frac{\partial \theta_S^*}{\partial l} < 0$ .

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<sup>11</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.

The total compensation for the politician under state banking is

$$k_S^* = \begin{cases} n(m-n) + \left\{ \frac{1}{2} - \frac{n[2m-(2-\beta)n+2\beta l]}{4(1-\beta)nI} \right\} nI & \text{for } \theta_S^* > 0 \\ n(m-n) & \text{for } \theta_S^* = 0 \end{cases} \quad (3.20)$$

□

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  $k_S^*$  is directly related to  $\theta_S^*$  and thus decreases over  $\beta$  until  $\theta_S^*$  reaches zero, after which it stabilises at  $n(m-n)$ .

### 3.4.2 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 7.** *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  $\theta_P$  to maximise total profits given  $k_P^*$ :

$$\begin{aligned} \max_{\theta_P} U_{e,P} &= E[\pi_{e,P}] \\ \text{s.t. } 0 &\leq \theta_P \leq 1 \end{aligned} \quad (3.21)$$

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:

$$\begin{aligned} & \max_{k_P} U_{p,P} \\ & \text{s.t. } 0 \leq k_P \leq n(m - n) + \theta nI \end{aligned} \quad (3.22)$$

After some algebra this results in

$$k_P^* = \max \left\{ n(m - n) - \left\{ \frac{n[2m - (2 - \beta)n] + 2\beta l}{4(1 - \beta)nI} - \frac{1}{2} \right\} nI, 0 \right\} \quad (3.23)$$

$$\theta_P^* = \begin{cases} \max \left\{ \frac{3}{4} - \frac{n[2m - (2 - \beta)n] + 2\beta l}{8(1 - \beta)nI}, 0 \right\} & \text{for } k_P^* > 0 \\ \max \left\{ \frac{I - m + n}{2I}, 0 \right\} & \text{for } k_P^* = 0 \end{cases} \quad (3.24)$$

□

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>12</sup>

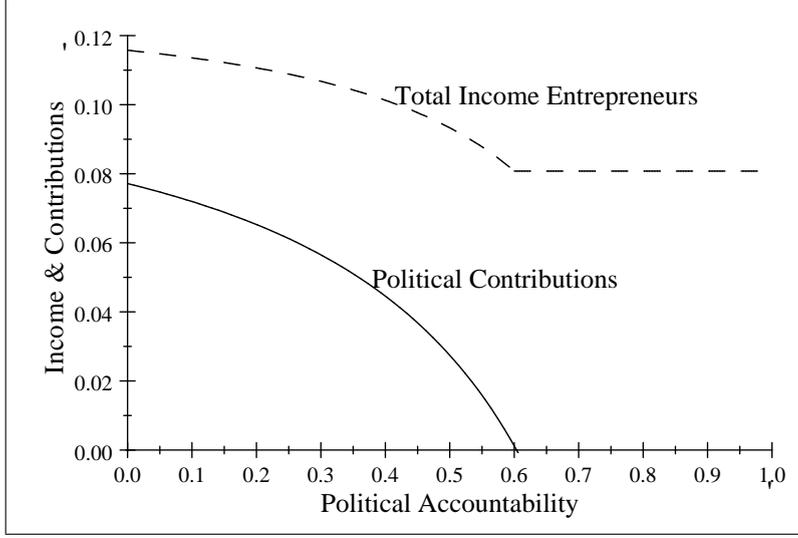
### 3.4.3 Choice of bank governance

The politician compares his utility under state and private banking. In figures 2 till 7 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

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<sup>12</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 3.1: Income and contributions for  $m = \frac{1}{2}, I = \frac{1}{3}$  and  $l = 0$ .



to state banking  $S$  and the solid black line to private banking  $P$ . Bold line segments are part of the equilibrium.

The politician prefers  $S$  for low enough  $\beta$  and  $E$ , as depicted in figure 2. Figure 3 shows that when costs  $l$  are positive and default is hence more costly, control over funneling remains in state hands for higher accountability.

**Proposition 8.** *Political contributions are never lower under  $S$  than under  $P$ .*

*Proof.* Subtracting (3.23) from (3.20) we find the difference in rents

$$k_S^* - k_P^* = \begin{cases} 0 & \text{for } \theta_S^* > 0 \wedge k_P^* > 0 \\ \left\{ \frac{n[2m - (2-\beta)n] + 2\beta l}{4(1-\beta)nI} - \frac{1}{2} \right\} nI & \text{for } \theta_S^* = 0 \wedge k_P^* > 0 \\ n(m - n) & \text{for } \theta_S^* = 0 \wedge k_P^* = 0 \end{cases} \quad (3.25)$$

□

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

Figure 3.2: Utility for  $m = \frac{1}{2}, n = \frac{3}{8}, I = \frac{1}{3}, E = \frac{1}{10}$  and  $l = 0$ .

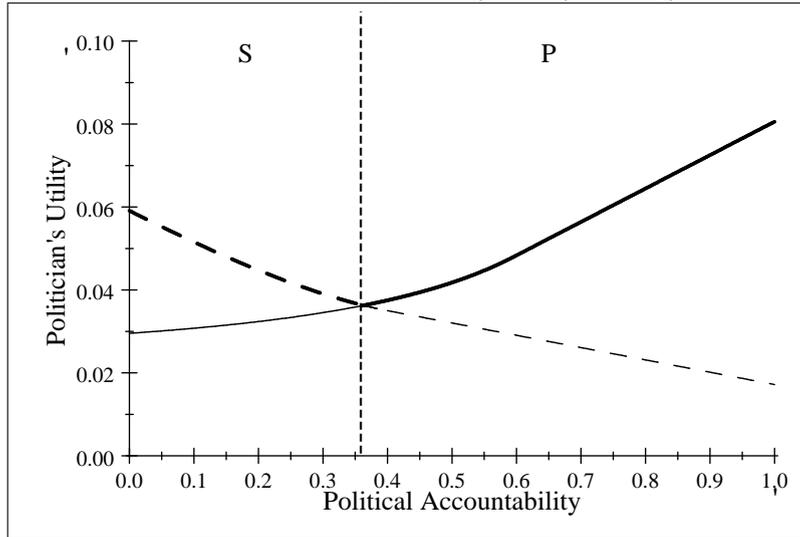
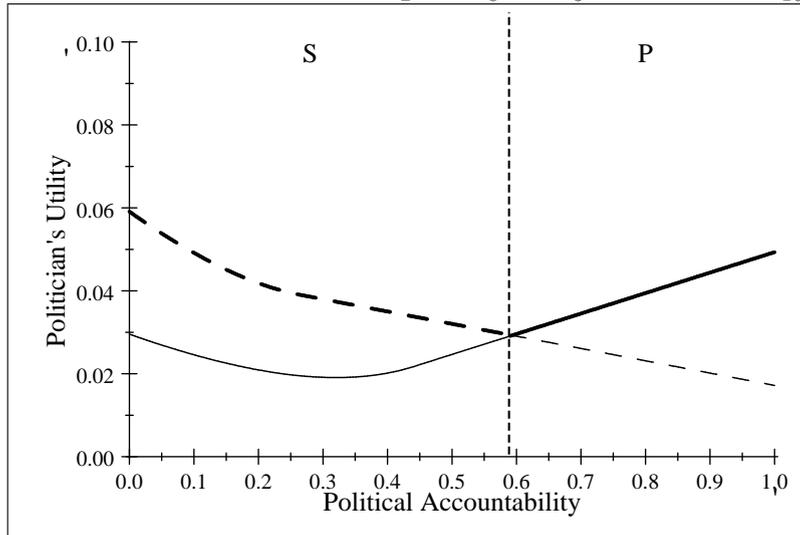


Figure 3.3: Utility for  $m = \frac{1}{2}, n = \frac{3}{8}, I = \frac{1}{3}$  and  $E = l = \frac{1}{10}$ .



### 3.4. BANK CONTROL AND INSTABILITY

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Figure 3.4: Rents for  $m = \frac{1}{2}, n = \frac{3}{8}, I = \frac{1}{3}, E = \frac{1}{10}$  and  $l = 0$ .

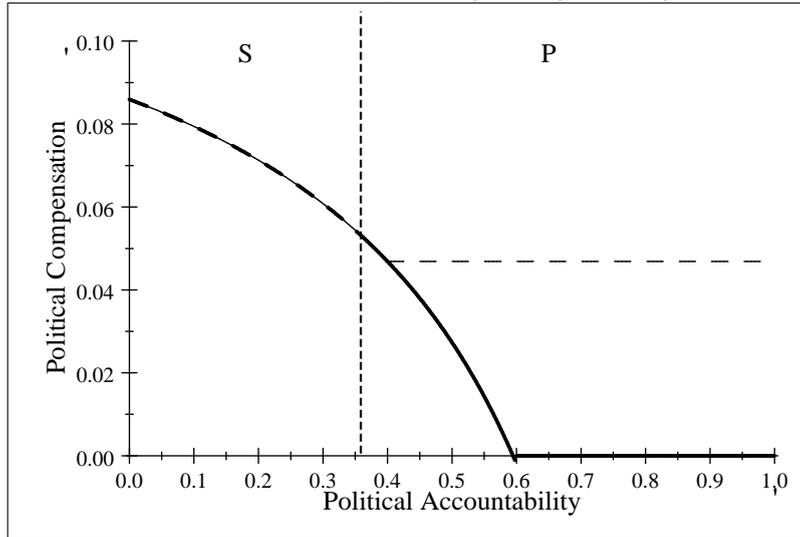


Figure 3.5: Rents for  $m = \frac{1}{2}, n = \frac{3}{8}, I = \frac{1}{3}$  and  $E = l = \frac{1}{10}$ .

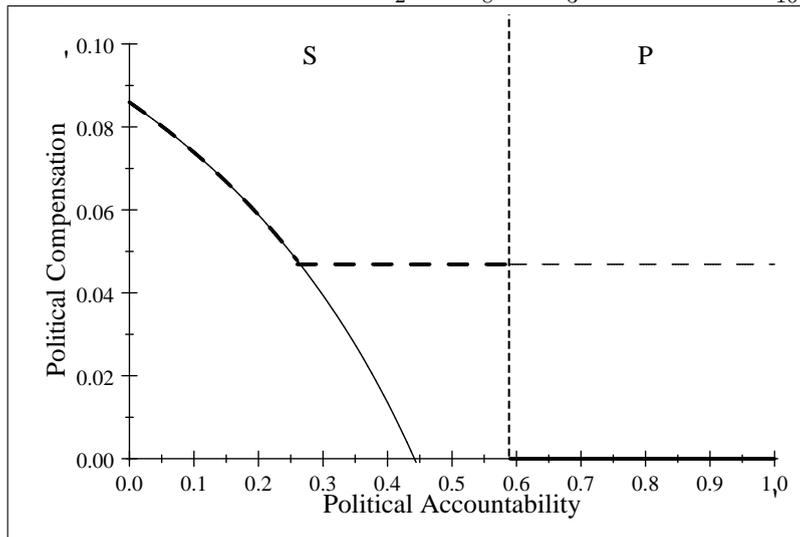
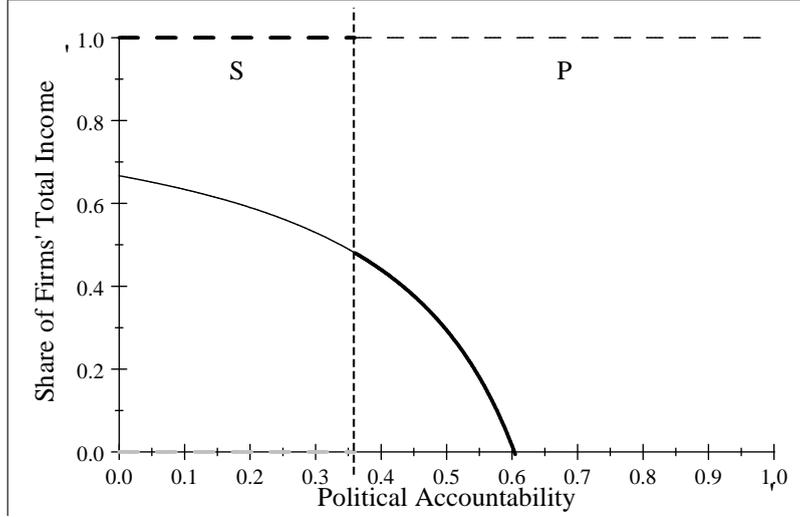


Figure 3.6: Sharing rents for  $m = \frac{1}{2}, n = \frac{3}{8}, I = \frac{1}{3}, E = \frac{1}{10}$  and  $l = 0$ .



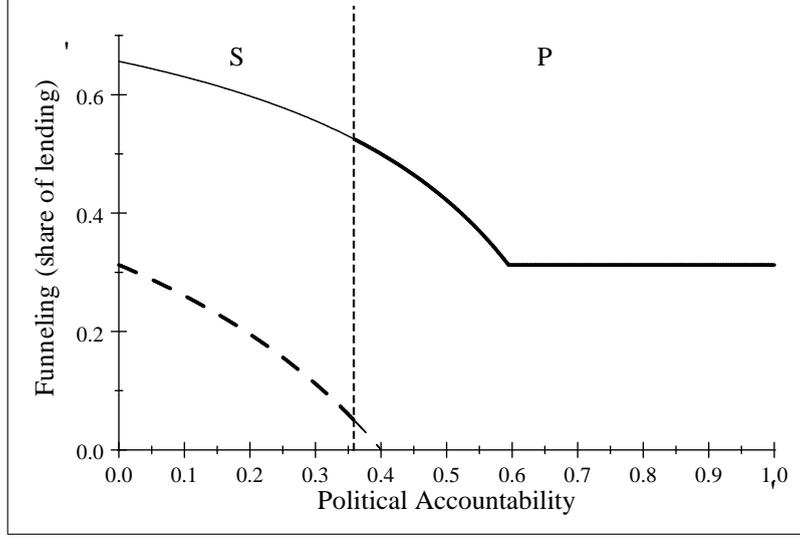
$k_P^*$  in an effort to limit  $\theta_P^*$ . When repossession costs  $l$  are low enough as in figure 4 (or inefficiency cost  $E$  is high enough) the transition from  $S$  to  $P$  occurs at low accountability  $\beta$  such that political compensation does not fall upon privatisation. When  $l$  is high however (figure 5), privatisation happens at higher  $\beta$  and political contributions fall.

**Proposition 9.** *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 the politician choosing  $S$  for low and  $P$  for high accountability as depicted in Figure 5, and  $k_S^*$  being equal to firms' total income while the share of  $k_P^*$  in firms' total income is smaller and decreases in  $\beta$ . See equations (3.20) and (3.23).  $\square$

Figure 6 depicts the share of firms' total income appropriated by the politician 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  $\beta$ .

We now present our main result

Figure 3.7: Funneling for  $m = \frac{1}{2}, n = \frac{3}{8}, I = \frac{1}{3}, E = \frac{1}{10}$  and  $l = 0$ .


**Proposition 10.** *There is at least as much funneling and instability under  $P$  than under  $S$ .*

*Proof.* From (3.19) and (3.24) it follows that

$$\theta_P^* - \theta_S^* = \begin{cases} \frac{1}{4} + \frac{n[2m-(2-\beta)n]+2\beta l}{8(1-\beta)nI} & \text{for } \theta_S^* > 0 \wedge k_P^* > 0 \\ \max\left\{\left\{\frac{3}{4} - \frac{n[2m-(2-\beta)n]+2\beta l}{8(1-\beta)nI}\right\}nI, 0\right\} & \text{for } \theta_S^* = 0 \wedge k_P^* > 0 \\ \max\left\{\frac{I-m+n}{2I}, 0\right\} & \text{for } \theta_S^* = 0 \wedge k_P^* = 0 \end{cases} \quad (3.26)$$

which is nonnegative.  $\square$

We have just shown that  $\theta_P^* \geq \theta_S^*$ . This is one of the main results of the paper, and implies a greater risk of bank default under  $P$  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 7.

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. Figure 7 shows 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.

## 3.5 Endogenous access to finance

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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  $k_C$ , the size of coalition  $n_C$  is endogenous. In this section we set  $l = 0$  for simplicity.

### 3.5.1 Product market equilibrium

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

### 3.5.2 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 11.** *Under state banking*

- (a) *entry  $n_S^*$  is increasing in political accountability  $\beta$ .*

(b) political contributions  $k_S^*$  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

$$\begin{aligned} & \max_{n_S, \theta_S, k_S} U_{p,S} \\ & \text{s.t. } 0 \leq k_S \leq n(m - n) + \theta_S n I \\ & \quad 0 \leq \theta_S \leq 1 \end{aligned} \tag{3.27}$$

resulting in

$$k_S^* = n_S^*(m - n_S^*) + \theta_S^* n I \tag{3.28}$$

$$\theta_S^* = \max \left\{ \frac{2}{3} - \frac{m}{3(1-\beta)I}, 0 \right\} \tag{3.29}$$

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

$$n_S^* = \begin{cases} \frac{2[m+(1-\beta)I]}{3(2-\beta)} & \text{for } \theta_S^* \geq 0 \\ \frac{m}{2-\beta} & \text{for } \theta_S^* = 0 \end{cases} \tag{3.30}$$

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

Finally, total income of the politician is

$$n_S^* = \begin{cases} \frac{2[(2-6\beta+3\beta^2)m^2+(4-6\beta+3\beta^2)(1-\beta)mI+2(1-\beta)^2I^2]}{9(1-\beta)(2-\beta)^2} & \text{for } \theta_S^* \geq 0 \\ \frac{1-\beta}{(2-\beta)^2} m^2 & \text{for } \theta_S^* = 0 \end{cases} \tag{3.31}$$

which decreases 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  $\theta_S^*$ .

### 3.5.3 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 12.** *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  $t = 2$ :

$$\begin{aligned} \max_{\theta_P} U_{e,P} &= E[\pi_{e,P}] \\ \text{s.t. } 0 &\leq \theta_P \leq 1 \end{aligned} \tag{3.32}$$

such that

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

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

$$\begin{aligned} \max_{n_P, k_P} U_{p,P} \\ \text{s.t. } 0 &\leq k_P \leq n_P(m - n_P) + \theta n_P I \end{aligned} \tag{3.33}$$

Taking first order conditions yields

$$k_P^* = \max \left\{ \frac{2(2 - 6\beta + 3\beta^2)m^2}{9(1 - \beta)(2 - \beta)^2} + \frac{2(4 - 6\beta + 3\beta^2)(1 - \beta)mI + 4(1 - \beta)^2I^2}{9(1 - \beta)(2 - \beta)^2}, 0 \right\} \quad (3.34)$$

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

$$\theta_P^* = \begin{cases} \frac{5}{6} - \frac{m}{6(1 - \beta)I} & \text{for } k_P^* > 0 \\ \frac{2}{3} - \frac{\sqrt{3m^2 + I^2}}{I} & \text{for } k_P^* = 0 \end{cases} \quad (3.35)$$

and

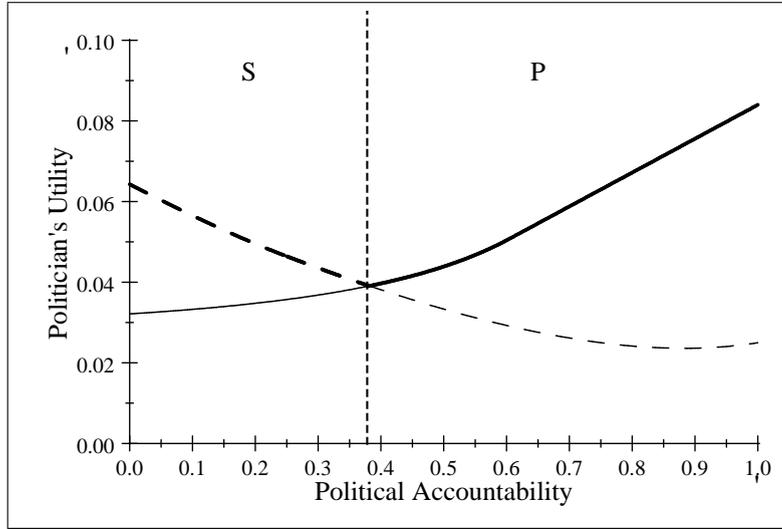
$$n_P^* = \begin{cases} \frac{2[m + (1 - \beta)I]}{3(2 - \beta)} & \text{for } k_P^* > 0 \\ m - \frac{1}{3}(\sqrt{(3m^2 + I^2)} - I) & \text{for } k_P^* = 0 \end{cases} \quad (3.36)$$

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  $\theta_S^* = 0$ ).  $\square$

As 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.

Figure 3.8: Utility for  $m = \frac{1}{2}, I = \frac{1}{3}$  and  $E = \frac{1}{10}$ .



Because of the growing importance of social welfare  $n_P^*$  still increases over  $\beta$ , but at a slower rate than  $n_S^*$ .

### 3.5.4 Choice of bank governance

As in the basic model the politician compares his utility under state and private banking. In figures 8 till 11 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 11 shows that as for exogenous entry the politician prefers state banking  $S$  for low accountability  $\beta$  and private banking  $P$  for high  $\beta$ .

**Proposition 13.** *Comparing  $S$  and  $P$*

- (a) *entry under  $P$  is smaller or equal to entry under  $S$ .*
- (b) *the political contributions are never lower under  $S$  than under  $P$ .*
- (c) *funneling is greater under  $P$  than under  $S$ .*

(d) *social welfare increases under  $S$  and under  $P$ , and at the transition from  $S$  to  $P$  due to cost  $E$ .*

*Proof.* Using (3.30) and (3.36) we compute

$$n_S^* - n_P^* = \begin{cases} 0 & \text{for } \theta_P^* > 0 \wedge k_P^* > 0 \\ \frac{m-2(1-\beta)I}{3(2-\beta)} & \text{for } \theta_P^* = 0 \wedge k_P^* > 0 \\ \frac{1}{3}(\sqrt{(3m^2 + I^2) - I}) - \frac{(1-\beta)m}{2-\beta} & \text{for } k_P^* = 0 \end{cases} \quad (3.37)$$

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

Comparing (3.28) and (3.34) results in (b) and comparing (3.29) and (3.34) results in (c).

Social welfare as in (3.13) and (3.14) increases in entry and decreases in funneling. Because  $n_S \geq n_P$  and  $\theta_S < \theta_P$ , social welfare falls upon the transition from  $S$  to  $P$ . On the other hand, inefficiency costs  $E$  are no longer incurred, raising citizens' consumption of the numeraire good. At the transition

$$E[U_{p,S}] = E[U_{p,S}] \text{ with } k_S^* \geq k_P^* \Leftrightarrow E[s_S] \leq E[s_P] \quad (3.38)$$

□

The figures 9, 10 and 11 respectively depict entry, political compensation and funneling for  $S$  and  $P$ .

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, as in figure 9. This means that the banks emerging just after

Figure 3.9: Entry for  $m = \frac{1}{2}, I = \frac{1}{3}$  and  $E = \frac{1}{10}$ .

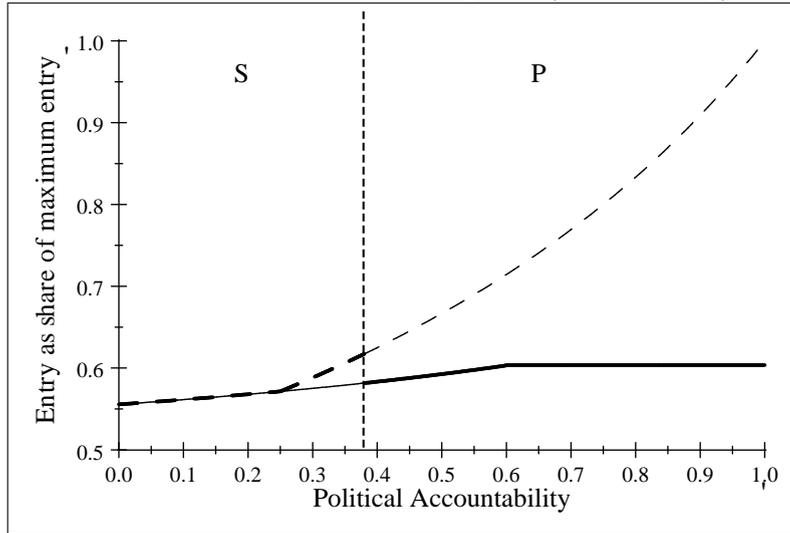


Figure 3.10: Politician's rents for  $m = \frac{1}{2}, I = \frac{1}{3}$  and  $E = \frac{1}{10}$ .

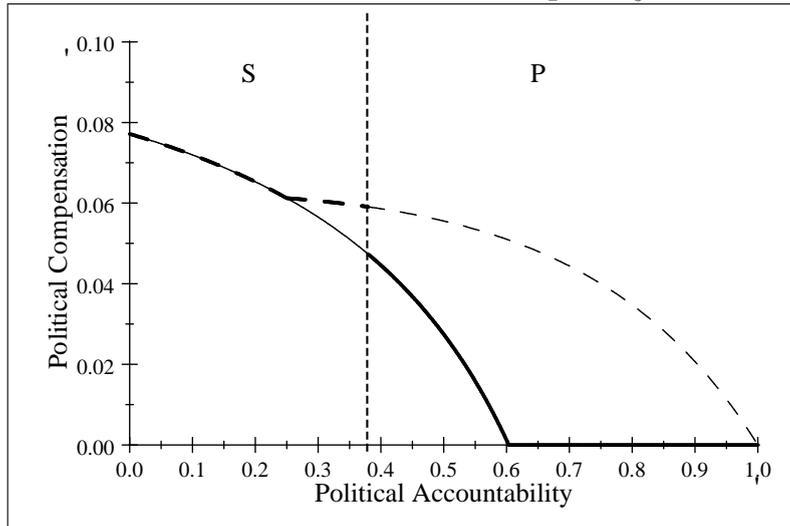
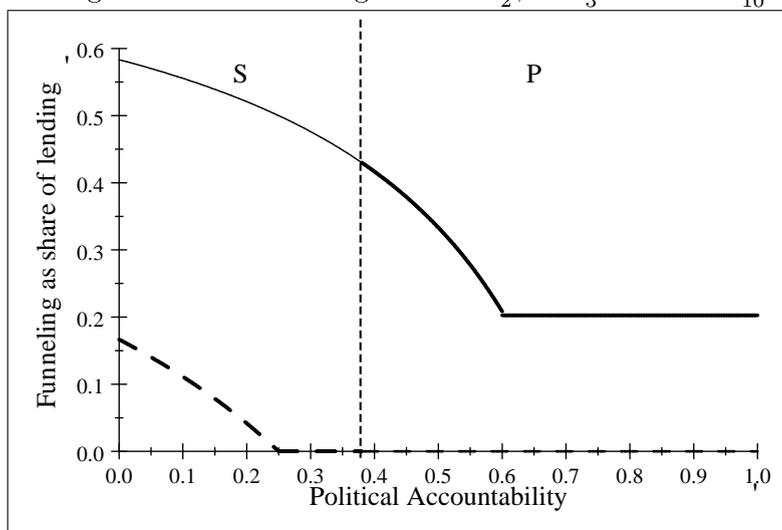


Figure 3.11: Funneling for  $m = \frac{1}{2}, I = \frac{1}{3}$  and  $E = \frac{1}{10}$ .



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 11). Interestingly, entry endogenously stops increasing under  $P$  for  $\beta > \beta_P^*$  such that  $k_P^* = 0$ . The politician allows entrepreneurs to keep all 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 4 whereas they gradually falls to zero in figure 10 because endogenous entry  $n_S^*$  continuously increases over  $\beta$ . Because of increasing  $n_S^*$ , the politician reduces the funneled share of loans  $\theta_S^*$  faster with endogenous entry.

## 3.6 Empirical implications and evidence

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The main testable predictions of the model are:

- (i) state banks are predominant for low and private banks for high levels of political accountability.

(ii) banks are likely to be privatised when accountability is intermediate, such that private banks are captured and there is low entry and hence slower economic development. As accountability increases private bank control dilutes and entry increases.

(iii) banking crises are most likely when political accountability is intermediate, and especially in captured banks.

We now empirically illustrate the effects of political accountability on bank control. While existing work shows that state control of banks is lower in countries with more accountable political systems, we are not aware of a similar prediction differentiating across private banks.

Our variable *bank control* comes from Morck, Yavuz and Yeung (2009) who deduced the ultimate ownership and voting rights of the 10 largest listed and unlisted banks in 44 countries at the end of 2001 and classified banks as state-controlled, a family-controlled (i.e. private captured) or independent. At each level of the ownership chain they take the largest owner who controls more than 10 percent of the vote as the controlling owner and then sum all voting blocks with common ultimate owners. Assuming that family members and state entities act in concert they assign the ownership category to the largest controlling owner. We interpret independent banks as less captured by its owners than family banks, or in any case related to a broader coalition of interests (corresponding in the model to a high  $n$ ).

We use a country's *Voice and Accountability*, *Polity2-score* and *Press Freedom* as measures for political accountability. These measures quantify democratic accountability, the quality of governing institutions and/or the freedom of the media (table 10 contains an overview of all variables). Acknowledging that changing bank control is a slow process (especially in case of block ownership), we use country's average score for the past five years. We test the relationship between accountability and bank control in OLS-regressions, controlling for country's *legal origin*.

### 3.6. EMPIRICAL IMPLICATIONS AND EVIDENCE

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The descriptive statistics in table 10 state that 27 percent of large banks' assets was controlled by the state, 28 percent by a family or individual and 45 percent by an independent bank. There is great variation in the sample: in some countries bank assets are fully controlled by the state, in others by families and in yet others all large banks are independent. Despite a bias towards more accountability countries, there are countries with low and high accountability in the sample. Although there is no data on bank control for (former) communist countries, it contains countries with English, French, Scandinavian and German legal origin and countries at different stages of economic development.

Graphs 1 to 3 show the average share of total bank assets controlled by respectively state, family and independent banks as a function of our three measures of political accountability. In each graph we categorised countries along accountability. The graphs reveal that state control is most likely for low, family control for intermediate and independent control for relatively high accountability, as predicted by the model. This result is robust to changes in categorisation.

In tables 11 to 13 we run OLS regressions to see whether the correlation between bank control and political accountability is robust to legal origin, which could play a major role. To separate intermediate political accountability from both positive and negative extremes, we construct squared variables.<sup>13</sup> In line with the graphs, tables 12 to 14 suggest that state control is predominant in countries with low accountability, family control is strongest for intermediate accountability, and independent bank control for high accountability.<sup>14</sup> When controlling for political institutions, family control remains more widespread in countries with French legal origin. Other coefficients on legal origin are mostly insignificant in our admittedly small sample.<sup>15</sup>

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<sup>13</sup>Voice and Accountability and Polity IV are centered around zero, such that their squares are U-shaped. For Press Freedom, which runs from 0 to 100, we first subtract 50 and then take the square.

<sup>14</sup>A higher level of Voice and Accountability or Polity IV means that accountability is higher. A higher level of Press Freedom means that accountability is lower.

<sup>15</sup>In principle, our OLS regressions could suffer from reverse causality. However, we think it is

These simple tests complement the much more extensive evidence by Morck, Yavuz and Yeung (2009), who investigate the effects of bank control on capital allocation and bank stability. They show that capital allocation efficiency is lower with state and family banks, while instability is increasing only in the share of family banks. In line with the model, the transition from state to private bank control empirically seems to occur at intermediate level of accountability, when banks are captured.

### 3.7 Conclusion

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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, unlikely that even powerful banks (controlled by either the state, families or independent shareholders) determine political accountability. Even if this were the case, bankers would actually keep accountability low to protect profits. Alternatively, variations in accountability and bank control over time and space could be jointly determined by a third variable. Until now we were unable to come up with such a variable worth investigating.

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.

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.

### 3.8 Tables

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<i>Table 10. Variable Description</i>			
	<i>Variable</i>	<i>Source</i>	<i>Description</i>
Panel A. Dependent Variable			
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.
Panel B. Explanatory Variables			
2	Voice and 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>
Panel C. Control Variables			

5	Legal Origin	La Porta, Lopez-de- Silanes,Shleifer and Vishny (1999)	Division of countries in English, French, German, Scandinavian and Socialist legal origin.
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## CHAPTER 3. BANK OWNERSHIP AND FINANCIAL STABILITY

*Table 11. Political Accountability and State Bank Control: OLS*

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 four political variables. The dependent variable 'State' refers to the fraction of votes in the ten largest banks in a country controlled by the state at the end of 2001. Other variables are as given in Table 7. The omitted category is German legal origin.

		<i>Voice and Acc.</i>	<i>Polity2</i>	<i>Press Freedom</i>
		(1)	(2)	(3)
Political Variable	Coefficient	-0.204***	-0.025	0.007**
	P-Value	(0.004)	(0.108)	(0.022)
English legal origin	Coefficient	-0.150	-0.107	-0.164
	P-Value	(0.188)	(0.446)	(0.185)
French legal origin	Coefficient	-0.174	-0.090	-0.170
	P-Value	(0.129)	(0.438)	(0.152)
Scandinavian legal origin	Coefficient	-0.093	-0.177	0.138
	P-Value	(0.481)	(0.204)	(0.330)
Constant	Coefficient	0.519***	0.536***	0.177*
	P-Value	(0.000)	(0.004)	(0.078)
<i>N</i>		43	43	43
<i>R-squared</i>		0.2585	0.1428	0.1755

Table 12. *Political Accountability and Family Bank Control: OLS*

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 four political variables. The dependent variable 'Family' refers to the fraction of votes in the ten largest banks in a country controlled by a family at the end of 2001. Other variables are as given in Table 7. The omitted category is German legal origin.

		<i>Voice and Acc.</i>	<i>Polity2</i>	<i>Press Freedom</i>
		(1)	(2)	(3)
Political Variable	Coefficient	0.164***	0.039**	-0.002
	P-Value	(0.002)	(0.024)	(0.692)
Political Var. Squared	Coefficient	-0.313***	-0.007**	-0.000**
	P-Value	(0.000)	(0.015)	(0.095)
English legal origin	Coefficient	0.202*	0.138	0.090
	P-Value	(0.073)	(0.146)	(0.315)
French legal origin	Coefficient	0.276***	0.262***	0.193*
	P-Value	(0.009)	(0.003)	(0.061)
Scandinavian legal origin	Coefficient	0.289**	0.050	0.130
	P-Value	(0.028)	(0.545)	(0.250)
Constant	Coefficient	0.295***	0.292*	0.411
	P-Value	(0.007)	(0.083)	(0.131)
<i>N</i>		43	43	43
<i>R-squared</i>		0.5022	0.3097	0.2644

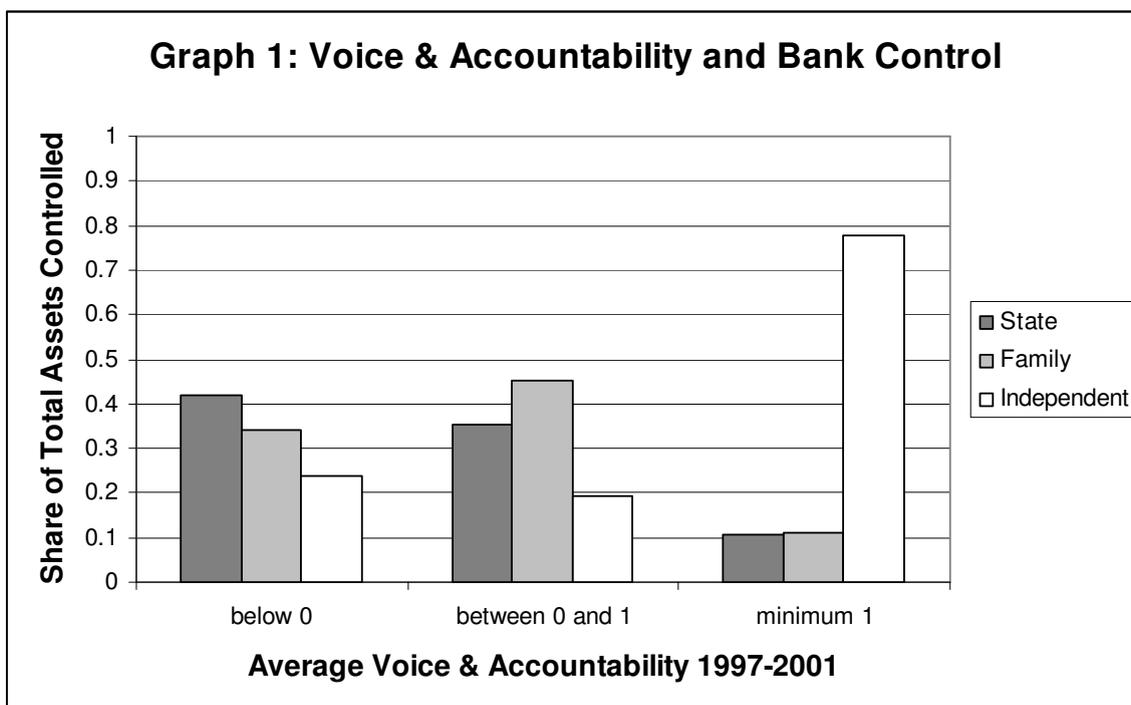
## CHAPTER 3. BANK OWNERSHIP AND FINANCIAL STABILITY

*Table 13. Political Accountability and Independent Bank Control: OLS*

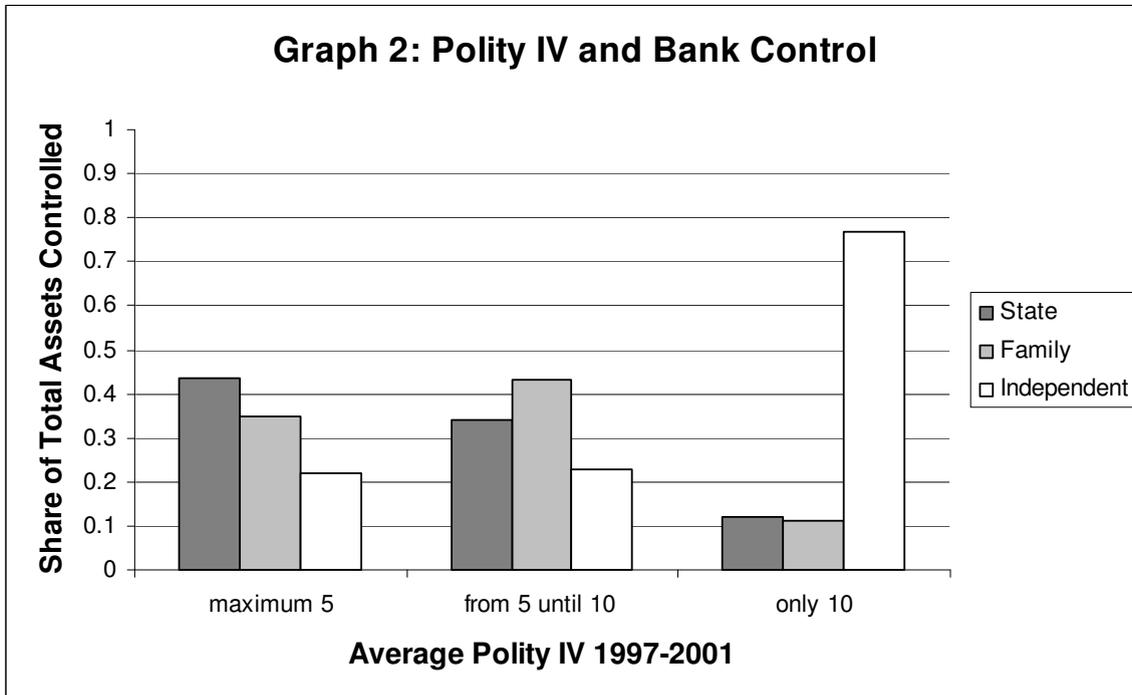
The table shows the results of cross-country OLS-regressions with robust standard errors. Explanatory variables are in rows, with a column for each of the three political variables. The dependent variable 'Independent' refers to the fraction of votes in the ten largest banks in a country controlled by independent investors at the end of 2001. Other variables are as given in Table 7. The omitted category is German legal origin.

		<i>Voice and Acc.</i>	<i>Polity2</i>	<i>Press Freedom</i>
		(1)	(2)	(3)
Political Variable	Coefficient	0.251***	0.030*	-0.010***
	P-Value	(0.002)	(0.054)	(0.001)
English legal origin	Coefficient	-0.006	-0.063	0.041
	P-Value	(0.965)	(0.705)	(0.791)
French legal origin	Coefficient	-0.124	-0.231	-0.097
	P-Value	(0.401)	(0.127)	(0.527)
Scandinavian legal origin	Coefficient	0.065	0.168	0.109
	P-Value	(0.665)	(0.277)	(0.490)
Constant	Coefficient	0.358**	0.346*	0.803***
	P-Value	(0.012)	(0.067)	(0.000)
<i>N</i>		43	43	43
<i>R-squared</i>		0.4090	0.2838	0.3784

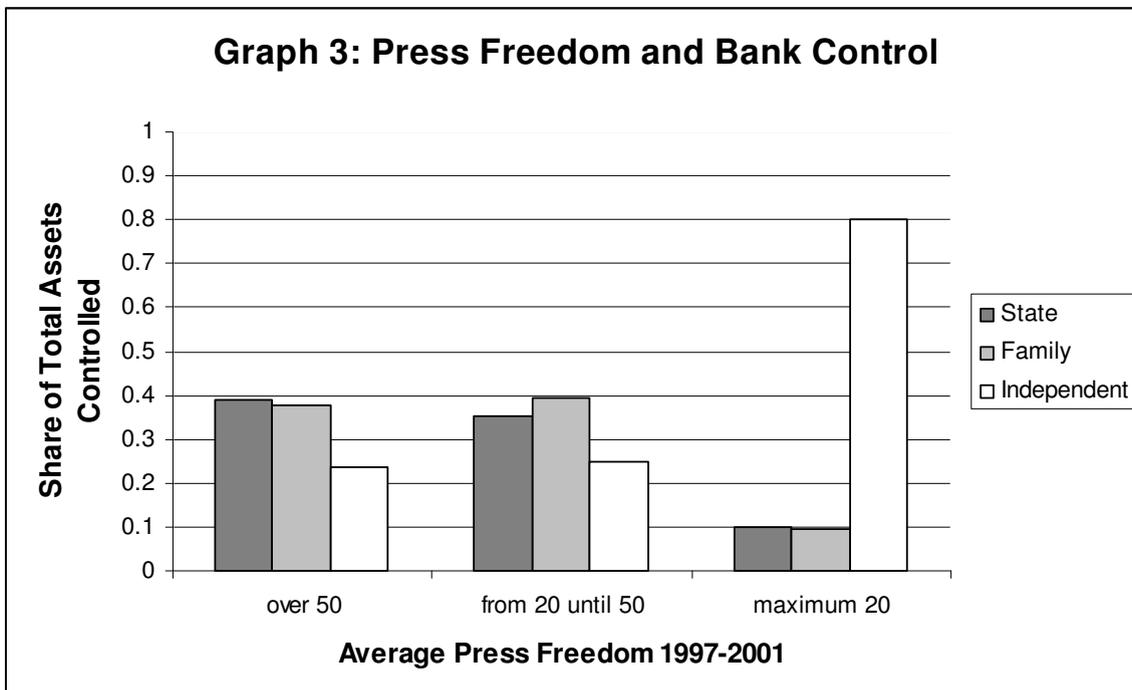
*These graphs depict the average country-level share of total bank assets controlled by state, family and independent banks for different levels of accountability, measured by respectively Voice and Accountability, the Polity IV-score and Press Freedom (see table 1).*



*The 'baskets' of Voice and Accountability respectively contain 12, 13 and 18 countries.*



*The 'baskets' of Polity IV-scores respectively contain 10, 15 and 18 countries.*



*The 'baskets' of Press Freedom respectively contain 13, 14 and 16 countries.*