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Publication date
2010

[Link to publication](#)

Citation for published version (APA):

Perotti, E., & Vorage, M. (2010). *Bank ownership and financial stability*. Universiteit van Amsterdam. <http://www1.feb.uva.nl/pp/bin/975fulltext.pdf>

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Bank Ownership and Financial Stability

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15th of January 2010

Abstract

This paper investigates a politician's choice for state or private control of banks, anticipating how this choice influences actions by citizens seeking exclusive access to finance.

We show that when political accountability is low, politicians prefer control over lending and funneling via state banks. As state banks are less efficient, high levels of accountability induce private bank ownership. This transition occurs at intermediate levels of accountability when politicians allow private banks to be captured by a small group of entrepreneurs. These entrepreneurs lend to themselves on preferential terms, inducing a greater chance of bank failure. In an attempt to increase entrepreneurs' losses at default and hence reduce funneling as accountability increases, the politician leaves an increasing share of rents to entrepreneurs. As a result the likelihood of default decreases, but remains positive.

Interestingly, the model implies that entry and financial stability are likely to be lowest for intermediate levels of political accountability. We provide suggestive empirical support on bank control and review existing evidence on entry and financial stability.

Keywords: Political Economy, Bank Control, Lobbying, Instability

JEL Classifications: D70, G21, G28

[Acknowledgements] We would like to thank discussants and participants at seminars at the Australian National University, the EFA 2008, European University Institute Florence, Erasmus Universiteit Rotterdam, IESE and UAB in Barcelona, IIES in Stockholm, London School of Economics, Universiteit van Amsterdam, the Université de Toulouse, the University of Antwerp and the University of Tilburg for help and useful suggestions. Marcel Vorage acknowledges financial support from the Marie Curie Research Training Network through the 6th framework of the European Commission. This paper was previously circulated under the title 'Political Allocation of (Bank) Finance'.

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1 Introduction

Politicians significantly influence the allocation of finance via control over banks, regulation or financial guarantees. They have significant impact in terms of access to credit and ultimately financial instability. For instance, the role of the US congress in promoting the expansion of subprime lending by Fanny Mae and Freddy Mac for political reasons is subject of a fierce debate, while favorable credit allocation to political cronies has been cited as a cause of poor lending leading to the Asian crisis.

Political influence is direct in the case of state banks (and state guarantees). State banks are less efficient and prone to lend to connected individuals.¹ Even when banks are privately owned, political choices on financial regulation influence access to finance (Kroszner and Strahan, 1999). Established interests may lobby to limit bank regulation and bank competition, in order to capture access to finance and undermine newcomers (Rajan and Zingales, 2003).² Banks' ability to grant or deny finance to individual projects makes them 'gate-keeper' to product markets and therefore interesting to control. Privatisation of non-financial firms may well reduce the scope for opportunistic behaviour by politicians, but the privatisation decision itself remains driven by non-benevolent politicians (see for example Shleifer and Vishny, 1994; Bennedsen, 2000; Martimort, 2005).

We investigate a single politician's decision to retain state control over the country's banking sector or cede control to the private sector. Whoever controls banks (i) assigns scarce loans to the borrowers of choice and (ii) sets the terms of collateral for these loans.³ We now discuss both of these powers in turn. Firstly, any citizen in the country (with population normalised to one) getting a loan of size I can invest, become entrepreneur and produce one unit of final

¹See the next section (evidence) for greater detail and accompanying references.

²Insiders 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.

³In an extension banks do not only assign loans given the amount of available credit, but also determine the amount of credit itself.

good. As the scarcity of credit limits the number of future loans and thus production, all entrepreneurs make a profit. Anticipating these profits, potential entrepreneurs form an interest group that offers the politician financial compensation (i.e. private benefits) in exchange for state bank loans or private bank control. Secondly, the terms determine which share of future collateral I can be funneled by the entrepreneur during production. Some funneling is profitable for entrepreneurs but compromises the bank's resilience against a exogenous non-diversifiable shock. A too severe shock compared to collateral forces the bank to withdraw all loans, wiping out production and profits which greatly diminishes social welfare. The only way for the politician to limit funneling for private loans is to reward production by reducing leaving a larger slice of firm income to entrepreneurs (thus decreasing his own compensation). Additionally, running a state banks comes at a fixed cost E , borne by citizens via lump-sum taxes. In summary, the politician faces the following choice: incur costs E while directly controlling the bank and its stability *or* save costs E while ceding bank control to the interest group, allowing only indirect control over the bank's stability.

The political choice on bank control responds to a politician's sensitivity to social welfare, which we call political accountability. More specifically, we treat political accountability as the weight the politician puts on social welfare relative to his private benefits. As political accountability rises the politician seeks to forego costs E and limit diversion, while caring less for his private benefits.

We find that the politician prefers state banks when accountability is low, such that they can capture all profits as private benefits. Because state banks are costly for citizens, countries with intermediate accountability shift to private bank control.⁴ These private banks set weaker terms for collateral inducing greater instability, since private bankers benefit from funneling and do not fully internalise the social costs of default. As accountability increases further the

⁴Another motivation for bank privatization is that assigning state bank loans against bribes is illegal, as opposed to *legal* lobbying over regulation and bank control. This creates legal risks for political influence under state banking.

politician gradually gives up his own compensation to reduce funneling and keep loans afloat to safeguard production and social welfare. Our main result is that instability jumps discretely at the endogenous transition to private bank control. An intriguing implication is that a higher incidence of banking crises should be observed in countries at the point where the state withdraws from direct control, which is predicted to take place at an intermediate level of accountability. Our approach suggests that reforms reducing the direct role of the state occur *endogenously* at an institutional stage when regulatory institutions are still quite vulnerable to capture by special interests.

In an extension we endogenise the number of loans next to the distribution of financial access. In first instance more credit leads to higher entry and production, lower prices and higher social welfare. Therefore, for a given allocation of bank control, access to finance broadens with political accountability. In private banks however, higher production and lower profits induce greater diversion and instability. Therefore and perhaps surprisingly, state banks may be more supportive of entry than private captured banks.

Recent evidence (Morck, Yavuz and Yeung, 2009) shows that instability is highest in middle income countries where most private banks are controlled by small groups or families, suggested by the model upon the switch to private control. We extend this evidence and show that state banks are most widespread in countries with low, family banks in countries with intermediate and independent banks in countries with high political accountability.

Emphasizing the effect of control, we do not consider risk-controlling regulation of private banks.⁵ In reality limits to regulation and corporate governance allow significant discretion in bankers' lending choices. For this reason, our results would need qualification, but should persist under milder assumptions. Moreover, we assume that it is equally costly for all citizens to produce, dis-

⁵In a previous version of this paper, we allowed for regulation of lending practices of private banks, effectively reducing funneling. Modelling regulation raises various issues such as (i) the effectiveness of regulation and its dependency on accountability, (ii) whether it is possible to regulate private lending itself or only affect bankers' incentives via regulation and (iii) what amount of regulation turns private banks into a political tool, like state banks. Therefore regulation deserves to be treated in a separate paper.

regarding issues of efficiency. Thirdly, our model contains a non-diversifiable bank-based shock and bank-level financial risk-taking instead of a more standard firm-level moral hazard. Next to improved tractability, this allows us to investigate incentives for financial risk-taking and resilience to systemic financial shocks (as opposed to idiosyncratic shocks at non-financial firms). Finally, we abstract from the depositor risk of bank instability and financing problems of the bank itself by imposing full deposit insurance.

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 shortly discusses the illegality of bribes to state bankers. Section 7 illustrates some evidence supporting the predictions of the model, and section 8 concludes. In the appendix we provide a list of the variables used in the model.

2 Evidence

There is ample evidence of lower profitability and endemic losses of state banks (Megginson, 2005), be it in 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 Argentina (Berger, Clarke, Cull, Klapper and Udell, 2005).

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).⁶ In line with this political lending, state bank lending increases while state bank performance is especially weak in developing countries dur-

⁶State banks are also associated with inefficient financial allocation and weak political accountability (La Porta, Lopez-de-Silanes and Shleifer 2002).

ing election years (Dinc, 2005; Micco, Panizza and Yanez, 2007). Even when banks are privately owned, regulations influencing access to finance are subject to intense lobbying by special interests (Kroszner and Strahan, 1999; Rajan and Zingales, 2003). Such lobbying is constrained by electoral concerns and media scrutiny (Besley, Burgess and Prat, 2006), whose significance vary greatly across countries. Recent evidence indicates that financial access and competition are more limited when citizens have fewer democratic rights (Benmelech and Moskowitz, 2008) and read fewer newspapers (Perotti and Volpin, 2007). Regulatory capture is more severe when a small elite enjoys limited competition (Acemoglu, Johnson and Mitton, 2007).⁷ Finally, lending relationships last longest in weak contracting environments (Qian and Stahan, 2005) when we also expect captured banks.

The most direct evidence for our results comes from Morck, Yavuz and Yeung (2009), who find that capital allocation efficiency (the elasticity of capital spending with respect to value added) is decreasing in the share of both family owned and state banks. Moreover, the share of nonperforming loans and the probability of a banking crisis are increasing in the share of family ownership of banks. We show that state banks are most widespread for low, family banks for intermediate and independent banks for high accountability. Moreover, in developing economies ownership type affects risk taking by privatised banks, with banks controlled by industrial groups taking most, locally-controlled independent banks taking less and foreign-owned banks taking least risk (Boubakri, Cosset, Fischer and Guedami, 2005).

The model also implies that financial liberalisation in emerging markets may be followed by crashes. Major banking crises, such as in Chile (1981), Mexico (1994), Asia (1997) and Russia (1998) have been deepened by massive default on connected lending by private banks (Perotti 2002; Claessens, Djankov and Klapper, 2003; La Porta, Lopez-de-Silanes and Zamarripa, 2003). In Russia, Mexico and Korea private control over the banking system was established without

⁷For a broad overview of the literature on politics and finance, see Haber and Perotti (2008).

strengthening the legal and regulatory framework (De Luna-Martinez, 2000). The Mexican experience suggests very high rates of non-repayment of connected loans in privatised banks (La Porta, Lopez and Zamarripa, 2003; Gomberg and Maurer, 2005).

In Chile, business groups (*grupos*) close to the dictator Pinochet enjoyed remarkable privileges. In a biased privatisation program in the late 1970s, *grupos* were allowed to capture control of banks with borrowed money. This led to a major bank collapse in the early 1980s, and forced renationalisation of the financial system. The relative valuation of group firms declined in the period 1980-1990, as major political reforms progressively led to a return to democracy (Khanna and Palepu, 2000). In Korea, the *chaebol* business groups enjoyed the highest relative valuation and the easiest access to the state banking system during the dictatorship years, while both declined as the country restored democracy (Lee, Peng and Lee, 2004). In China, arrests of individual bureaucrats results in lower lending to connected firms, which lose market value as a result (Fan, Rui, Zhao, 2008).

During the 1997-1998 East Asian crisis, financial institutions connected to industrial groups or influential families continued to lend to connected firms (Claessens, Djankov and Klapper, 2003) that were subsequently more likely to default (Bongini, Claessens and Ferri, 2001). In Korea, the crisis revealed massive concentration of lending risk in *chaebols*, as several groups came into financial difficulty (Campbell and Keys, 2002). The Korean government was forced by public opinion to adopt considerably stronger regulatory and governance standards. As a result, Korea has enjoyed a much faster recovery than its neighbours, and a considerable broadening of its financial system. Also in Italy, there was a surge in banking competition and the level of nonperforming loans after liberalisation in the 1980s (Guiso, Sapienza and Zingales, 2006).

Our explanation is that liberalisation tends to happen at an institutional stage when capture is likely (see also Kaminsky and Schmuckler, 2008). Instability does not always rise with financial liberalisation. Measures of consumption volatility following equity market liberalisation on average fall, except

in countries with worse political institutions (Bekaert, Harvey and Lundblad, 2006). Bank privatisation has led to better performance in OECD-countries and, when sold to foreign entities, in transition economies. In non-transition developing countries evidence is much more mixed (Megginson, 2005). Anecdotal evidence shows that 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 De-tragiache, 1999).

Our result that weaker accountability is associated with less restricted entry into banking and more constrained access to finance is supported by recent evidence (Barth, Caprio and Levine, 2006; Perotti and Volpin, 2007). Across the United States, historical financial regulation supporting entry has been associated with stronger political and suffrage rights (Benmelech and Moskowitz, 2007).

A stable democracy with widely accessible free media appears to stimulate financial development and entry (Rajan and Zingales, 2003; Bordo and Rousseau, 2006; Perotti and Volpin, 2007). Political institutions seem to affect financial stability, even after controlling for policy choices (Acemoglu, Johnson, Robinson and Thaicharoen, 2003). Interestingly, financial instability is not correlated with formal measures of tight regulations or state ownership of banks (Barth, Caprio and Levine, 2006).

3 Model

A single politician chooses, under lobbying, a bank governance structure $G = \{S, P\}$ being either state control S or private control P of a single bank. The politician can retain control via state ownership, incurring a cost $E > 0$ borne equitably by the whole population, which is normalised to one. Alternatively, banks may be allowed to operate under private control. 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 $\pi_{e,G}$. The one in control of the bank can target

loans of size I and set terms on the collateral. We define n_G as the fraction of citizens able to get a credit and become entrepreneur, while fraction $1 - n_G$ is pure consumer c . We first assume n_G to be exogenous. Banks enjoy deposit insurance and are therefore able to raise funding for any required amount of investment $n_G I$. This deposit insurance is funded equitably by all citizens.

Entrepreneurs pledge their investment I as collateral. Controlling the bank allows to write a loan contract which allows for funneling of collateral during production. Specifically, let $\theta_G \in [0, 1]$ denote the fraction of collateral which may be funneled, reducing its effective value to $(1 - \theta_G) I$.

Once loans are assigned, the bank experiences an exogenous shock ε drawn from a uniform distribution over $[0, 1]$, which may lead to bank default. As a reduced form, let the bank default and recall credit whenever $\theta_G > \varepsilon$, implying a default probability of θ_G .

3.1 Timing

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

At $t = 1$ the politician grants exclusive access to finance to n_G citizens in exchange for compensation k_G .

At $t = 2$ the bank raises $n_G I$ and grants n_G loans of size I . Borrowers invest I in a productive asset which is used as collateral. The terms of the loan determines the share $\theta_G \in [0, 1]$ of asset I which can be diverted (i.e. stolen) by entrepreneurs during production at $t = 4$.

At $t = 3$ nature draws ε from a uniform distribution with support $[0, 1]$. The bank defaults and recalls loans at cost $L > 0$ when $\theta_G > \varepsilon$, so with probability θ_G .^{8,9}

At $t = 4$ entrepreneurs funnel $\theta_G I$.

⁸Note that because production is disrupted and assets repossessed, the potential diversion θ does not take place.

⁹In our model, bank collapse results in a full collapse of private sector production. We could introduce a variable denoting the probability that a firm still produces after bank default. Funneling would increase in this production probability, while our comparative results remain unchanged.

At $t = 5$ the citizens receive endowment ω and the goods markets open. Consumers buy the final good (if available) and spend the rest on the numeraire good, entrepreneurs make their loan payment $(1 - \theta_G)I$ to the bank and political compensation k_G is paid. Deposit insurance covers any bank shortfall.

3.2 Utility

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

$$U_{i,G} = x_{i,G} + ac_i - \frac{1}{2}c_i^2 \text{ for } i = c, e \quad (1)$$

where $x_{i,G}$ and c_i are respectively the consumption of a single numeraire and a single final good and a is the strength of demand, with $a > I$.¹⁰ Individual income equals a constant endowment ω plus any firm profits $\pi_{e,G}$. Therefore the average citizen's consumption of the numeraire good is $x_{i,G} = \omega + n_G\pi_{e,G} - c_i f$, with f being the price of the final good.

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

$$U_{p,G} = (1 - \theta_G) [\beta (s_G - \omega) + (1 - \beta) \pi_{p,G}] \quad (2)$$

where s_G and $\pi_{p,G}$ are social welfare and the politician's expected income given governance structure $G = \{S, P\}$. We neglect endowment ω because it is received independent of any political action (or production level). Efficiency costs E are incurred at $t = 0$ if $G = S$ and are paid whether the bank defaults or not.

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

¹⁰This 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.

$$s_G = (1 - n_G) E[U_{c,G}] + n_G E[U_{e,G}] + E[\pi_{p,G}] \quad (3)$$

We now construct the 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).

3.3 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.

3.3.1 Consumers

After substituting the result above in (1) consumer's utility under S equals

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

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

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

3.3.2 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

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

3.3.3 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

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

3.3.4 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 .

3.3.5 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

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

4 Bank control and instability

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

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.¹¹

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 θ_S^* is decreasing in political accountability β , as long as it is non zero.*

¹¹Because 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.

Proof. The politician solves

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

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 β , because its utility falls over β and bank default has a greater political cost the larger β . When β is high enough, θ_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 β until θ_S^* reaches zero, after which they stabilise at $n(m-n)$.

4.2 Private banking

Under private banking the lobbyist controls funneling θ_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 θ_P^* and compensation k_P^* are decreasing in β , as long as they are non zero.*

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

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

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 $\frac{\partial \theta_P^*}{\partial L} < 0$.¹²

The utility of the politician is

$$U_{p,P} = \begin{cases} \frac{n[2m - 2n + 2I - 2\beta I + n\beta]^2}{32(1 - \beta)I} - \left\{ \frac{3}{4} - \frac{n[2m - (2 - \beta)n] + 2\beta L}{8(1 - \beta)nI} \right\} \beta L & \text{for } k_P^* > 0 \\ \beta \left(\frac{m - n + I}{2I} \right) \left[\frac{1}{2} n^2 + n(m - n) \right] - \beta \left(\frac{I - m + n}{2I} \right) L & \text{for } k_P^* = 0 \end{cases} \quad (26)$$

■

¹²One can show that $k_{PC} > 0$ for sufficiently low β , for which $\frac{3}{4} - \frac{2m - (2 - \beta)n}{8(1 - \beta)I} > \frac{I - m + n}{2I}$.

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 β compensation k_P^* falls to zero. For such β funneling and the entrepreneurs' profits stabilise.¹³

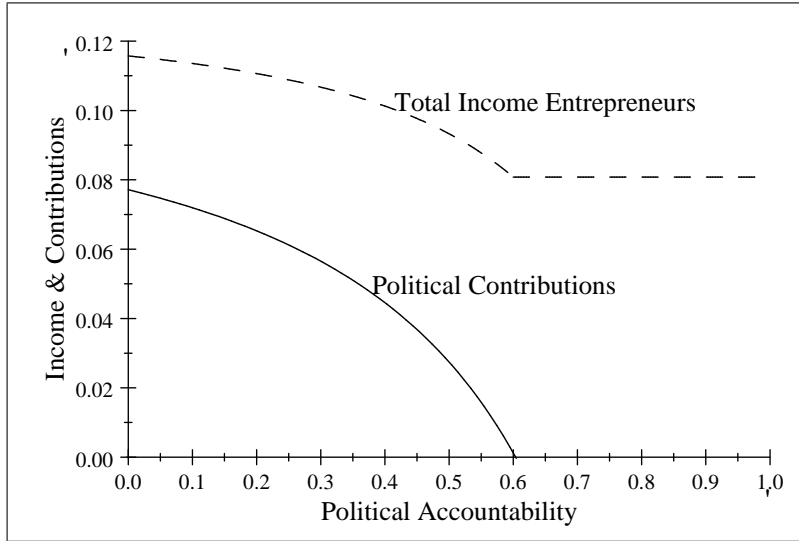


Figure 1: Income and contributions for $m = \frac{1}{2}$, $I = \frac{1}{3}$ and $L = 0$.

4.3 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 β and E , as depicted in figure 2a.

¹³The extension with endogenous entry shows that at such a threshold politicians choose to limit entry, to maintain private rents in solvent times.

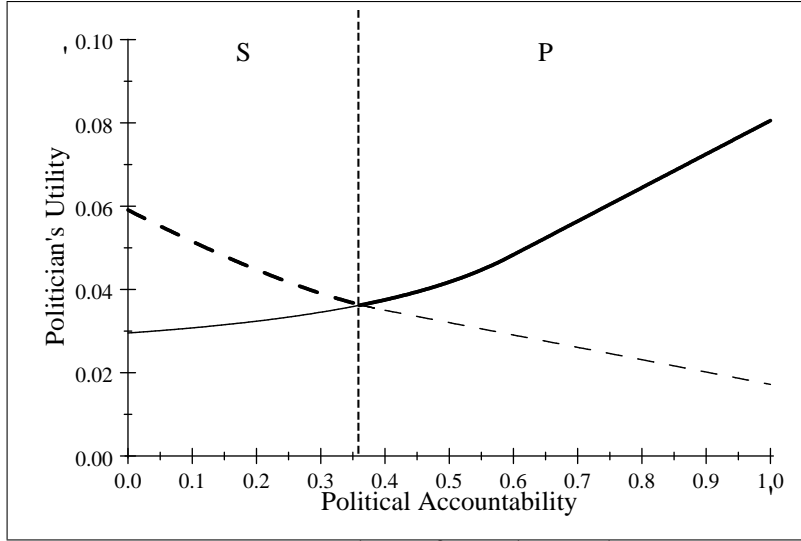


Figure 2a: Utility for $m = \frac{1}{2}, n = \frac{3}{8}, I = \frac{1}{3}, E = \frac{1}{10}$ and $L = 0$.

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.

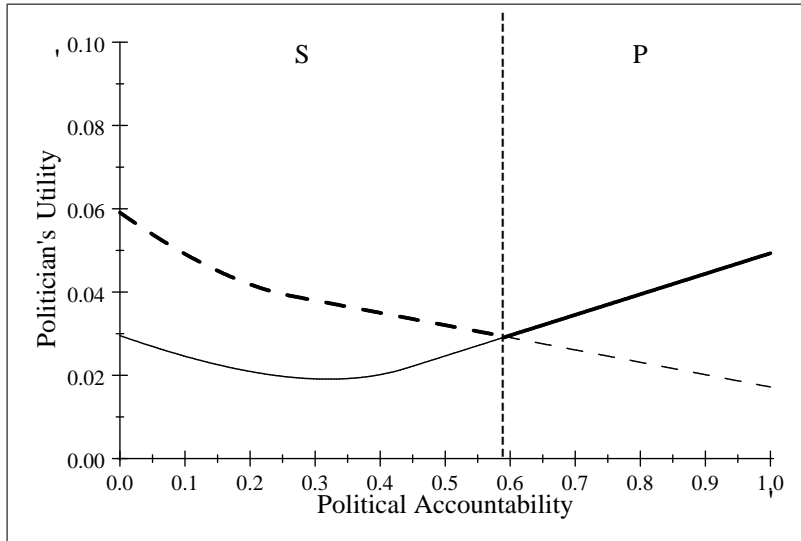


Figure 2b: Utility for $m = \frac{1}{2}, n = \frac{3}{8}, I = \frac{1}{3}$ and $E = L = \frac{1}{10}$.

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. ■

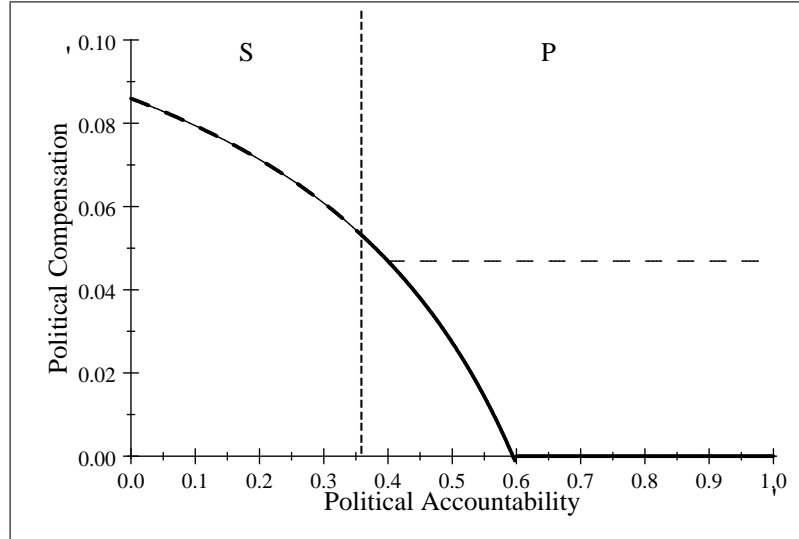


Figure 3a: Rents for $m = \frac{1}{2}$, $n = \frac{3}{8}$, $I = \frac{1}{3}$, $E = \frac{1}{10}$ and $L = 0$.

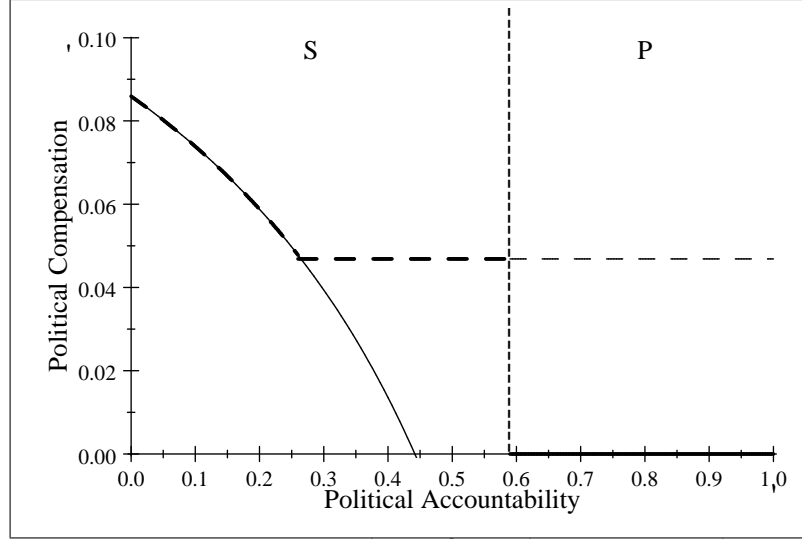


Figure 3b: Rents for $m = \frac{1}{2}$, $n = \frac{3}{8}$, $I = \frac{1}{3}$ and $E = L = \frac{1}{10}$.

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 θ_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 β such that political compensation does not fall upon privatisation. When L is high however (figure 3b), privatisation happens at higher β and political contributions fall.

Proposition 4 *The share of firms' total income appropriated by the politician as political compensation decreases of political accountability.*

Proof. The results follows from

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

(ii) the share of k_S^* in firms' total income is one while the share of k_P^* in firms' total income is smaller than one and decreasing in β , from 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 . As expected, income shifts towards entrepreneurs upon the transition from S to P .

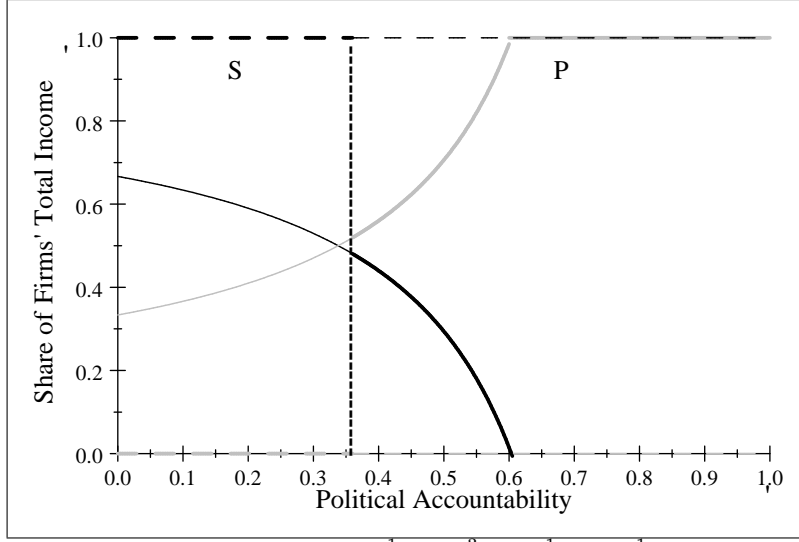


Figure 4: Sharing rents for $m = \frac{1}{2}$, $n = \frac{3}{8}$, $I = \frac{1}{3}$, $E = \frac{1}{10}$ and $L = 0$.

We now present our main result

Proposition 5 *There is more 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 positive. ■

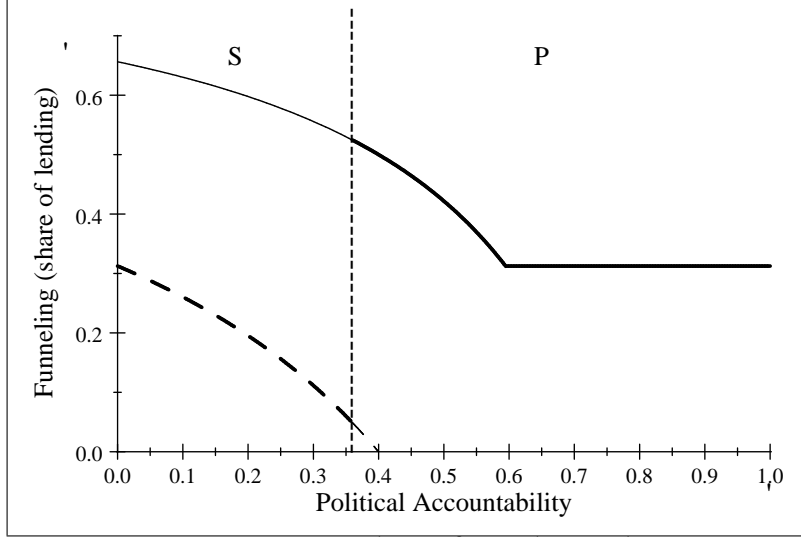


Figure 5a: Funneling for $m = \frac{1}{2}$, $n = \frac{3}{8}$, $I = \frac{1}{3}$, $E = \frac{1}{10}$ and $L = 0$.

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 β , as depicted in figure 5b.

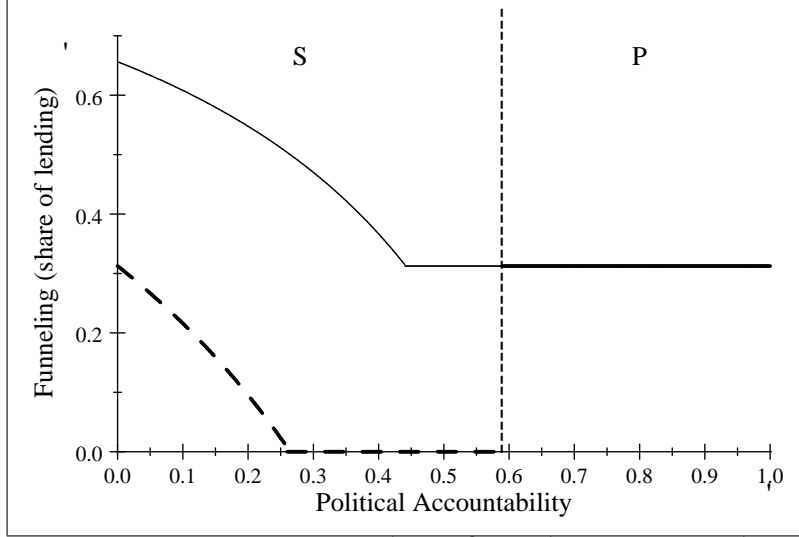


Figure 5b: Funneling for $m = \frac{1}{2}$, $n = \frac{3}{8}$, $I = \frac{1}{3}$ and $E = L = \frac{1}{10}$.

In summary, when accountability β is low the politician does not care much about efficiency costs E and prefers state control over banks to funnel funds directly. However, when β 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 β 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 β compensation drops to zero and funneling stabilises.

5 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 $L = 0$.

5.1 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 $n_G = \frac{1}{2}m$.

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 6 *Under state banking*

- (a) entry n_S^* is increasing in political accountability β .
- (b) political compensation equals firms' total income and decrease in accountability β .
- (c) funneling θ_S^* is decreasing in political accountability β , 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

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

resulting in

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

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

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

which falls in β . ■

As social welfare increases in entry and becomes more valuable for the politician the higher is accountability β , entry n_S^* is increasing over β . On the other hand, funneling θ_S^* falls with β , 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 θ_S^* .

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 θ_P .

Proposition 7 *Under private captured banking*

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

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

$$\begin{aligned} & \max_{\theta_P} E[\pi_{e,P}] & (33) \\ \text{s.t. } & 0 \leq \theta \leq 1 \end{aligned}$$

such that

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

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

$$\begin{aligned} & \max_{n_P, k_P} U_{P,P} & (34) \\ \text{s.t. } & 0 \leq k_P \leq n_P(m - n_P) + \theta_P n_P I \end{aligned}$$

Taking first order conditions yields

$$k_P = \max \left\{ \frac{2 \left[(2 - 6\beta + 3\beta^2) m^2 + (4 - 6\beta + 3\beta^2) (1 - \beta) m I + 2(1 - \beta)^2 I^2 \right]}{9(1 - \beta)(2 - \beta)^2}, 0 \right\} \quad (35)$$

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 θ_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 β (when $\theta_S^* > 0$), while $n_P^* < n_S^*$ for high β (when $\theta_S^* = 0$). ■

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

For low β , entry $n_P^* = n_S^*$, while for high β 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 β , but at a slower rate than n_S^* .

5.4 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 β and private banking P for high β .

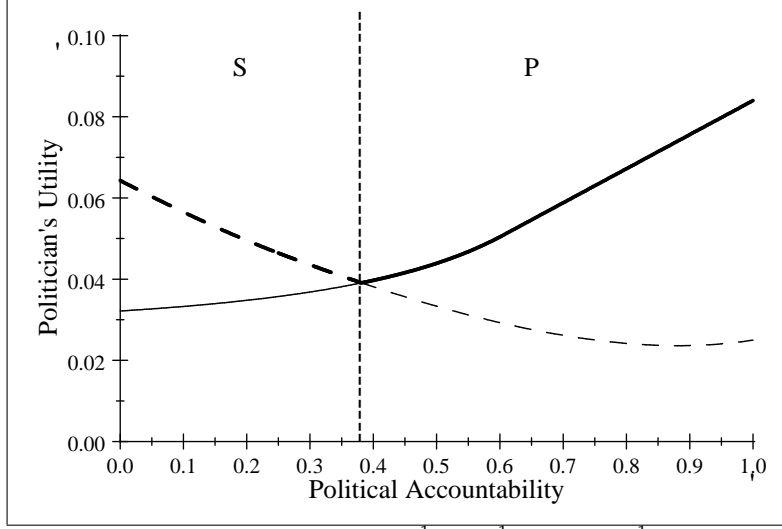


Figure 6: Utility for $m = \frac{1}{2}, I = \frac{1}{3}$ and $E = \frac{1}{10}$.

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

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

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 .

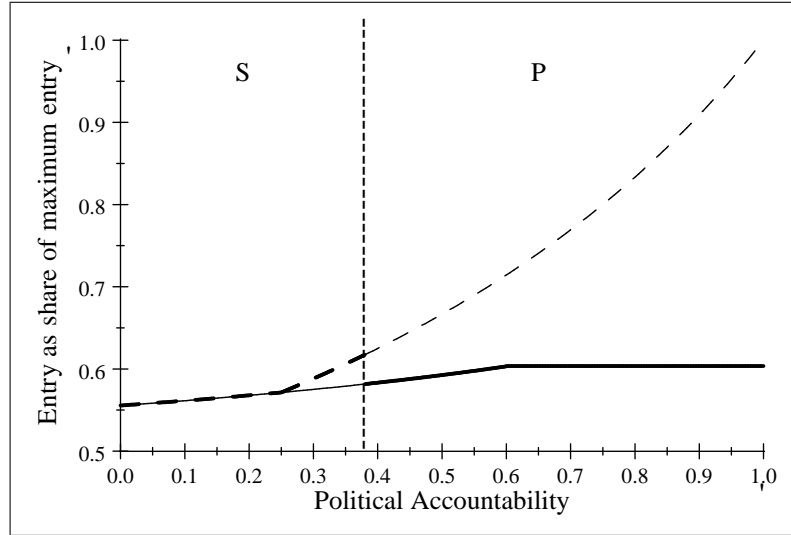


Figure 7: Entry for $m = \frac{1}{2}$, $I = \frac{1}{3}$ and $E = \frac{1}{10}$

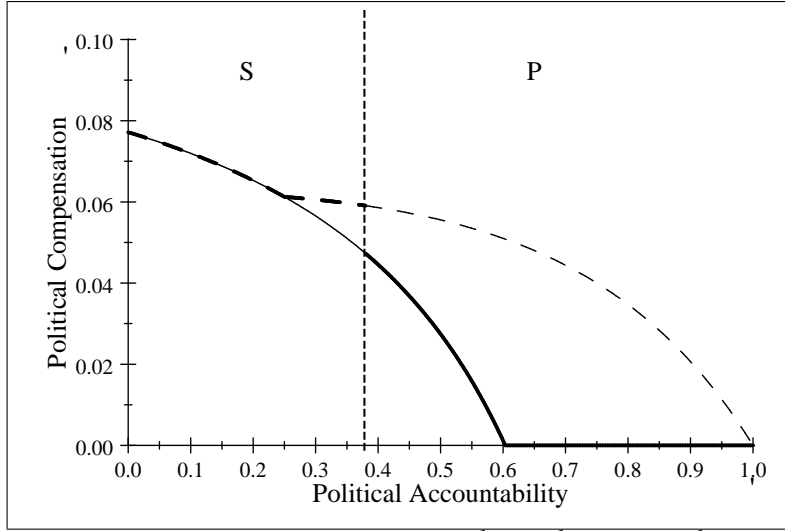


Figure 8: Politician's rents for $m = \frac{1}{2}$, $I = \frac{1}{3}$ and $E = \frac{1}{10}$.

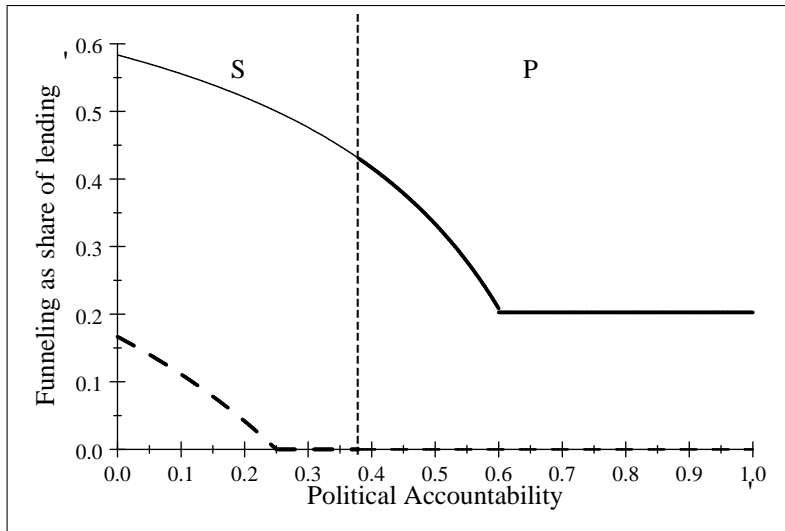


Figure 9: Funneling for $m = \frac{1}{2}$, $I = \frac{1}{3}$ and $E = \frac{1}{10}$

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 θ_P^* . Entrepreneurs thus enjoy limited competition to restrain them from undermining stability, even when accountability is very high.

Compensation stabilises under S for high β in figure 3 whereas they gradually fall to zero in figure 7 because endogenous entry n_S^* continuously increases over β . 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 β . Therefore, the politician reduces θ_S^* faster with endogenous entry.

6 Legality and bank control

When banks are state-controlled the politician directly grants access to finance in exchange for private benefits. When banks are private, the politician can only grant bank licences or alter regulation to affect private bank control (for example the protection of minority shareholders). The former favour is usually referred to as bribing, the latter as lobbying. Bribing of state officials for preferential treatment is illegal and constrained by an independent judiciary, while lobbying is legal and unconstrained.

Following Perotti and Vorage (2009), who compares direct versus indirect control of entry on interest group formation, we introduce legality by changing the politician's utility under state banking from (15) to

$$U_{p,S} = (1 - \beta\phi)(1 - \theta_S) \left\{ \beta \left[\frac{1}{2} (n_S)^2 + n_S (m - n_S) \right] + (1 - \beta) k_S \right\} - \beta (E + \theta_S L) \quad (38)$$

where $\phi \in [0, 1]$ denotes the strength of legal institutions. Our foundation for the reduced form legal costs $\beta\phi$ is as follows. Accountability incorporates citizens' ability to both gather objective information about policies and sanction

politicians taking welfare-reducing decisions. Legality ϕ is a measure of judicial independence and competence. Higher accountability β increases the likelihood that bribes are exposed in the first place while higher legality ϕ increases the chance of effective enforcement.

From (38) we see that the political costs of legality increase in β and that equilibrium entry and funneling are independent of legality. Legality is thus comparable to the inefficiency costs, which has the same properties. The comparative statics of the two variables coincide: also when legality increases, private banking becomes optimal at a lower level of political accountability. Hence, either legality issues or inefficiency costs produce the same outcomes.

State ownership of banks is indeed lower in countries with more accountable political systems and better rule of law (La Porta, Lopez-de-Silanes and Shleifer 2002; Bortolotti, Fantini and Siniscalco, 2003; Barth, Caprio and Levine, 2006). Higher legality, measured by the tenure and power of judges, is also correlated with private ownership of banks (La Porta, Lopez-de-Silanes, Pop-Eleches and Shleifer, 2004).

7 Empirical implications and evidence

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 illustrates the effects of political accountability on bank control. Existing work already shows that state control of banks is lower in

countries with more accountable political systems (La Porta, Lopez-de-Silanes, Shleifer, 2002; Bortolotti, Fantini and Siniscalco, 2003; Barth, Caprio and Levine, 2006). However, we are not aware of a similar prediction differentiating private banks, thus testing prediction (i).

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 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, 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 & Accountability*, *Polity2-score* and *Press Freedom* as measures for political accountability. These measure democratic accountability, the quality of governing institutions and/or the freedom of the media (table 1 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*.

The descriptive statistics in table 2 state that 27% of large banks' assets was controlled by the state, 28% by a family or individual and 45% 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 minor changes in categorisation.

In tables 3 to 5 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.¹⁴ In line with the graphs, tables 3 to 5 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.¹⁵ 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.¹⁶

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

¹⁴Voice & 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.

¹⁵A higher level of Voice & Accountability or Polity IV means that accountability is higher. A higher level of Press Freedom means that accountability is lower.

¹⁶In non-reported regressions we instrument our political variables, because for ex-colonies it is possible that both accountability and bank control were jointly determined by the colonising country. The instruments that affect political institutions (upon creation or later on) independent of the colonising country are *settler mortality* (Acemoglu, Johnson and Robinson, 2001), *latitude of the country's capital city*, *ethnic and linguistic fractionalisation* (Alesina, Devleeschauwer, Easterly, Kurlat and Wacziarg, 2003) and *UN-diplomats parking violations* (Fisman and Miguel, 2008). These proxy for respectively the external conditions faced by any European settler, the propensity of internal conflict and culture. The result remain valid, with bank control not always marked as endogenous by the Durbin-Watson-Hausmann test.

bank control empirically seems to occur at intermediate level of accountability, when banks are captured.

8 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.

State control of banks allows politicians to capture the largest rents. Abuse of political power is constrained by the ability of citizens to question and challenge political action, so state banks are more common in countries with weaker accountability. As accountability increases, the inefficiency of state banks, or increasing legal risk associated with bribing, induce politicians to allow private bank control. At the intermediate level of accountability when this shift occurs, banks are captured by a small group of entrepreneurs who do not incorporate the social costs of bank default. As a result, funneling of bank resources and the risk of default jump. As political accountability rises further, the politician seeks to limit funneling by leaving more rents when banks are solvent.

The approach suggests novel implications which appear supported by recent empirical evidence on bank control. 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. Adequate capitalisation and legislation seems necessary to avoid 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.

This approach needs to be extended in various directions. 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-Silanes, Shleifer and Vishny (1998), show that financial market development depends on legal guarantees for investors.

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Appendix: List of variables

a = strength of demand

β = political accountability

c = subscript denoting consumer(s)

c_i = consumption of the final good by citizen i

e = subscript for entrepreneur(s)

ε = 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)

π = profits

S = state banking (also as subscript)

θ = funneling as share of total lending

U = utility

ω = endowment for consumption per citizen

x_i = consumption of the numeraire good by citizen i

| Table 1. Variable Description | | | |
|--|------------------------|--|--|
| | Variable | Source | Description |
| 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 Variable | | | |
| 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 http://www.systemicpeace.org/polity/polity4.htm |
| 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 http://www.freedomhouse.org/template.cfm?page=274 |
| 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. |

| Table 2. Descriptive Statistics | | | | | | |
|---|-----------------------------------|-------------|---------------|---------------------------|----------------|----------------|
| Sample: is 44 countries from Morck, Yavuz and Yeung (2009) | | | | | | |
| Hong Kong is always dropped because it became part of China again in 1999. | | | | | | |
| The 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 or individual and independent parties at the end of 2001. | | | | | | |
| | | Mean | Median | Standard Deviation | Minimum | Maximum |
| Panel A. Bank Control Indexes | | | | | | |
| 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 |
| Panel B. Political Accountability | | | | | | |
| 4 | <i>Voice & 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 |
| Panel C. Controls | | | | | | |
| 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 State 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 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 1. P-values are in parentheses. | | | |
| | Voice & Accountability | Polity IV | Press Freedom |
| Political Variable | -0.204*** (0.004) | -0.025 (0.108) | 0.007** (0.022) |
| English legal origin | -0.150 (0.188) | -0.107 (0.446) | -0.164 (0.185) |
| French legal origin | -0.174 (0.129) | -0.090 (0.438) | -0.170 (0.152) |
| Scandinavian legal origin | -0.093 (0.481) | -0.177 (0.204) | 0.138 (0.330) |
| Constant | 0.519*** (0.000) | 0.536*** (0.004) | 0.177* (0.078) |
| N | 43 | 43 | 43 |
| R-squared | 0.2585 | 0.1428 | 0.1755 |

TABLE 4

Political Accountability and Family 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 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 1. P-values are in parentheses.

| | Voice & Accountability | Polity IV | Press Freedom |
|----------------------------|------------------------|---------------------|----------------------|
| Political Variable | 0.164*** (0.002) | 0.039** (0.024) | -0.002*** (0.692) |
| Political Variable Squared | -0.313*** (0.000) | -0.007** (0.015) | -0.000* (0.095) |
| English legal origin | 0.202* (0.073) | 0.138 (0.146) | 0.090 (0.315) |
| French legal origin | 0.276*** (0.009) | 0.262*** (0.003) | 0.193* (0.061) |
| Scandinavian legal origin | 0.289** (0.028) | 0.050 (0.545) | 0.130 (0.250) |
| Constant | 0.295*** (0.007) | 0.292* (0.083) | 0.411 (0.131) |
| N | 43 | 43 | 43 |
| R-squared | 0.5022 | 0.3097 | 0.2644 |

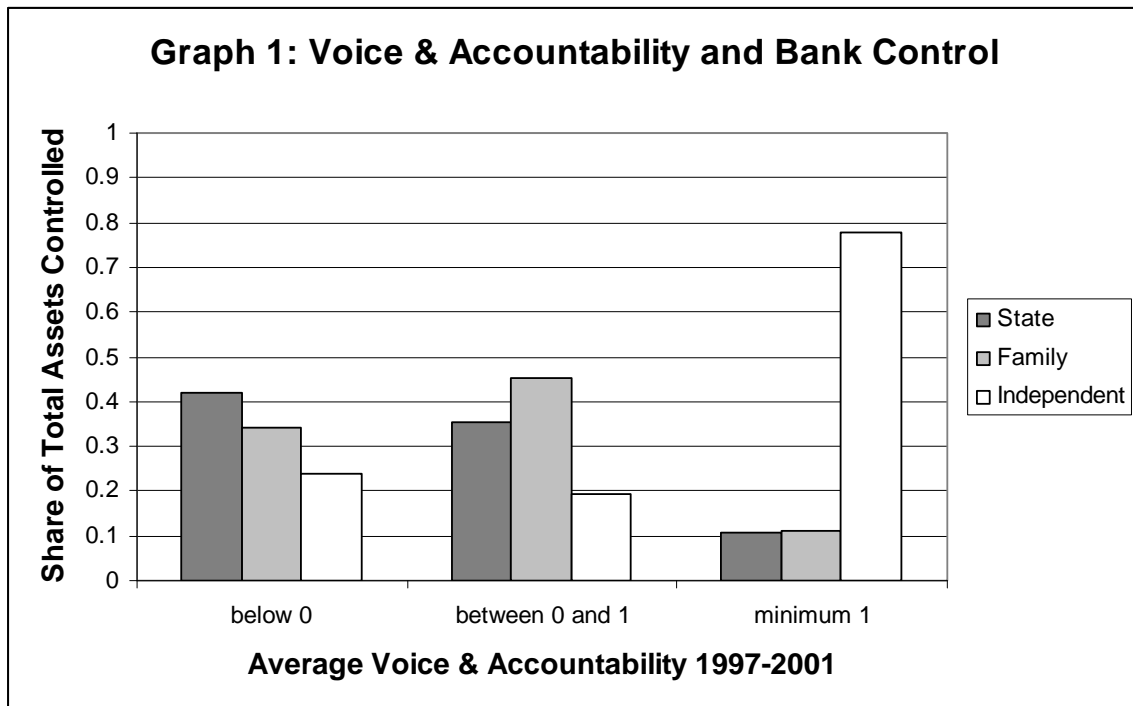
TABLE 5

Political Accountability and Independent Bank Control: Ordinary Least Squares

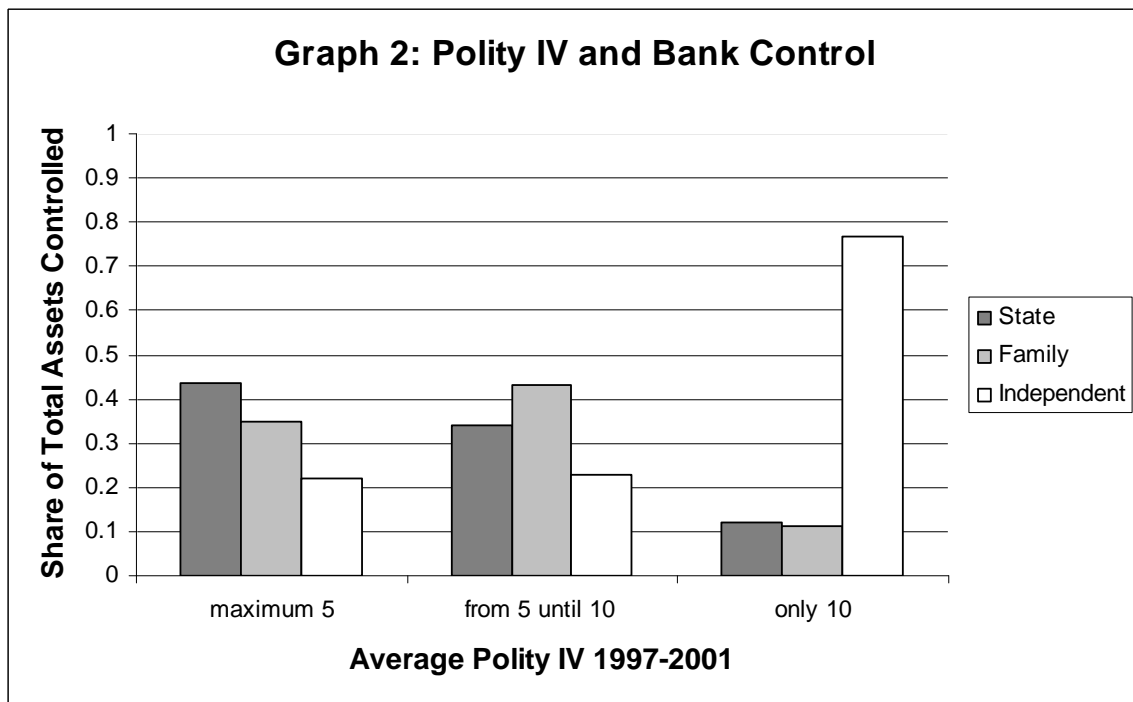
The table shows the results of cross-country OLS-regressions with robust standard errors. Explanatory variables are in rows, with a column for each of the three political variables. The dependent variable 'Independent' refers to the fraction of votes in the ten largest banks in a country controlled by independent investors at the end of 2001. Other variables are as given in Table 1. P-values are in parentheses.

| | Voice & Accountability | Polity IV | Press Freedom |
|---------------------------|------------------------|-------------------|----------------------|
| Political Variable | 0.251*** (0.002) | 0.030* (0.054) | -0.010*** (0.022) |
| English legal origin | -0.006 (0.965) | -0.063 (0.705) | 0.041 (0.791) |
| French legal origin | -0.124 (0.401) | -0.231 (0.127) | -0.097 (0.527) |
| Scandinavian legal origin | 0.065 (0.665) | 0.168 (0.277) | 0.109 (0.490) |
| Constant | 0.358** (0.012) | 0.346* (0.067) | 0.803*** (0.000) |
| N | 43 | 43 | 43 |
| R-squared | 0.4090 | 0.2838 | 0.3784 |

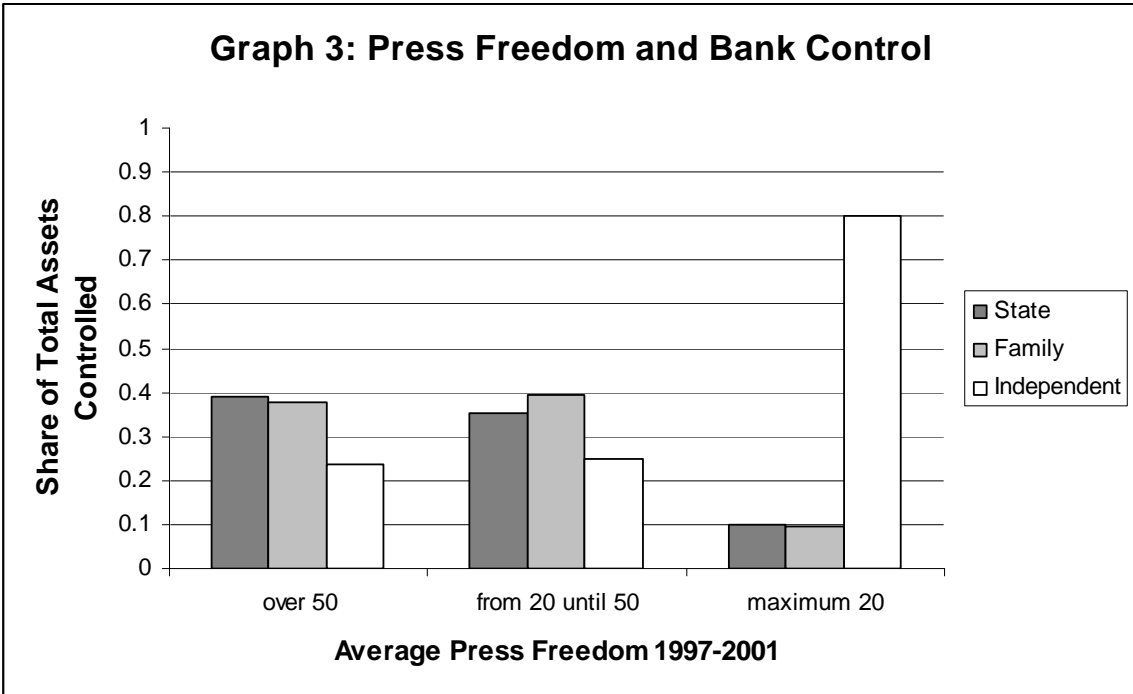
These graphs depict the average country-level share of total bank assets controlled by state, family and independent banks for different levels of accountability, measured by respectively Voice & Accountability, the Polity IV-score and Press Freedom (see table 1).



The 'baskets' of Voice & 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.