Political Connections, Bailout in Financial Markets and Firm Value

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Abstract

The paper shows that politically motivated interventions in the financial market in the form of bailing out borrowing firms reduce banks' incentives to gather valuable information about firms' projects. This loss of information is a hidden cost which adversely affects firm value. Firms invest resources and pay a premium to politically connected persons (BOD or other personnel). Such connections serve the twin purposes of hedging and enhancement of the value of collateral pledged against bank loans. Feeling secured, banks lose incentives to monitor borrowing firms. Thus, wealth effect of bailout from political connection is partially offset by the losses of valuable information brought about by bank lending. In equilibrium, the trade-off from gains out of political connections and costs due to losses from information-based bank monitoring depend on (i) the country's disclosure laws, (ii) the political environment, (iii) the premium paid to form connections, and (iv) the state of the economy.

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1. Introduction

A large volume of empirical literature has revealed the pervasive use of political connections by firms across many countries as a means of obtaining favours and economic gains from the state. See, **???????** among others, for extensive discussion of this phenomenon in diverse economic and financial environments. Earlier studies in this area focused on corruption and rent seeking activities of such connected firms in generic cases (See **?** and **?**). Recent studies further underscore the importance of financial markets in facilitating such connections between the concerned parties - namely, firms, banks, and politicians. These studies reveal that firms utilize resources to nurture political connections which enable them to secure loans on concessionary terms, default without many penalties and even extract a bailout in the event of financial distress. A large number of these papers show the existence of direct links between politicians and key personnel such as CEOs and members of the board of many firms[1]. Also, firms often contribute funds to political parties contesting elections. In return they receive multiple direct and indirect favours from banks and financial institutions in many countries. See **?????????**; for country-specific studies on multiple dimensions relating political connections of firms to banks and financial markets[2].

The literature has certainly enriched our understanding of the subject by presenting substantial body of evidence of political links and their *modus operandi*. However, it is also a fact that not all firms are politically connected as such connections - although they bring benefits also impose direct and indirect costs on firms. For example, the opportunity cost of hiring a politically connected CEO or personnel, or nominating such members to the board, is the forgone contributions of others who could have added value to the firm with their skills and expertise. The technical and politically connected board members are at best imperfect substitutes. Hence, a pertinent but so far unanswered question that occurs in this context is: what are the determinants of the trade-off behind the formation of such connections? That is, what are the incremental gains and costs faced by a firm that plans to forge political connections? Important related questions are: if political ties end up intervening in financial markets and institutions (as suggested by a large number of studies), how do they affect their core activities such as monitoring, supervision and production of information? Finally, are there any spill-over effects of such intervention in financial

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[1]See **??**; and **?** for campaign financing and composition of directors and other key personnel within firms.

[2]These papers consider the various forms of political connections in financial markets and banking institutions in a large number of countries in Asia, Europe and Americas.

systems that impact the value of the borrowing firms?

While addressing these questions, the paper contributes to the literature by offering new insights on the impact of political intervention on banks and financial markets and also by providing new empirical implications for the economies where the financial market is often subject to political influences. First, we establish that politically motivated state intervention for bailing out the connected firms in times of financial distress impair the banks' and financial institutions' abilities to produce information used extensively in the process of selection and monitoring of borrowing firms' projects. The resulting reduction of substantive content of banks' information used for loan evaluation imposes costs on the overall economy because it gives rise to a larger number of project failures, inefficient bankruptcies and fewer restructuring. Such phenomena are likely to occur because banks invest time, resources and money in acquiring information used in the process of granting loans to borrowers, monitoring of their projects and pricing of loan. The production of information generated in this process contributes to firm value and make bank loans special to alternative means of financing. See classic studies by **?** and **?** on the special role of banks which are followed by a host of studies like **??**, and **?** among others. However, bailing out makes the loan partially secured and political "capital" of firm serves as intangible collateral for bank loans. Feeling safer, banks lose incentives to gather information about the likelihood of the bad state. Hence, the trade-off appears in equilibrium where firms' benefits from bail out is partially offset by the lower level of information produced by banks.

Thus political connection, though helps the firms by offering a hedge against the likelihood of poor cash flow, the trade-off imposes two types of costs in equilibrium:

1. Direct costs, consisting of the payment of fees, remuneration and benefits to politically connected individuals who solicit for a bailout from the Government.

2. Indirect or hidden costs that are incurred when banks, being beneficiaries from the borrowing firm's political connections, lose incentives to produce information valuable for the firm as well. The potential value-reduction from less effective bank monitoring may represent an underexplored impact (i.e., a "hidden cost") of government involvement in the financial markets and may contribute to the broader debate of the costs and benefits of state participation in economic activities.

Second, we show that this detrimental effect on bank's bid to acquisition of information varies negatively with (a) environments encouraging a greater political interference in financial systems (b) degree of transparencies and norms of disclosure requirements and (c) state of the economy.

To put it in perspective, the result (a) is directly related to economies where a

greater percentage of banks is owned by the state. Since the goal of building political connections is to ensure access to emergency financing (i.e., bailouts), a state owned bank (SOB) can be more easily persuaded to make politically motivated loans than would a private bank. Thus, our model predicts that political connections should be more valuable in a country with a greater concentration of state ownership of banks. As a result, such economies will experience a decline in the banking services. There already exists a voluminous literature which show that SOBs are often used as a "tool of redistributive politics" (See **?**) whereby the state intervenes either directly or indirectly in pricing, disbursement and bailing out of loans on the basis of political patronage. A series of related empirical studies also document that state owned banks tend to be relatively more unprofitable and inefficient and often gets privatized as those political gains tend to be outweighed by costs which often consist of (among other elements) volume of bad loans disbursed parties with political connections. See **???** and **?** among many others for widespread evidence of adverse impact from both political and regulatory state intervention in SOB which are also consistent with conclusions reached in the current paper.

Second, the degree of transparencies and norms of disclosure often determine costs of gathering valuable information about the firm and its projects and opaqueness in laws hampers bank's efforts to collect such information. These factors introduce greater uncertainty about the downside risk of a firm's cash flow and encourage firms to build up political connections to shield downside risks. Our result in (b) is thus consistent with empirical findings of the related literature that show political connections vary in legal regimes depending on the strength of disclosures and transparencies. See **?** and **?** [3].

We also show that the political connections of firms and accompanying reduction of information based lending get exacerbated by the standard agency problems in firms where ownership is separated from control. Finally, we offer a new testable implication that a bad state of the economy increases downside risk and encourages more political activities that further deteriorates quality of bank's information.

We derive these conclusions in a set up where (i) firms use political connections as tools of insurance-cum-hedging which cushion the adverse shocks to their cash flows and (ii) such connection also acts as an intangible collateral for the bank and makes its loan more secured. The firms pay premiums (remunerations) to the connected

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[3]By using a comprehensive dataset with 101 countries spanning 1982 to 2000, **?** show that political influences, legal regimes and falling efficiencies of banks are important determinants of bank privatizations and thus in a way provide an indirect testimony to our conclusions regarding bank's reduced ability to produce information due to political interference.

board members and personnel who, in turn, secure bailouts and other favors from political network. The opportunity cost of this premium is the forgone services by skilled directors/personnel and the marginal gain is the incremental probability of receiving emergency funds from the Government.

Thus political connection in our model plays a role similar to hedging/insurance cum diversification strategies routinely followed by firms to mitigate exposures to business risk and uncertainty. See **??**, Buhlmann (1970), **??**. The price (wage rate or other forms of remuneration) paid to the connected members acts like an insurance premium which is equivalent to buying "political patronage" which enables firms to reduce downside risk of business cash flows. A firm thus holds a diversified portfolio of technical and political members and personnel and the latter group builds political connection with the purpose of obtaining emergency funds in times of financial distress. Viewed from this perspective, the function of political network replicates diversification, hedging and related risk management strategies and this alternative route for managing risk is more likely to be observed in a greater frequency in economies with undeveloped financial markets. The degree and strength of political connectivity depend on the composition of the member of these two types (technical and political members) which in turn depends on the relative costs and benefits like the wage premium, probability of downside risk and magnitude of bailout.

Such insurance/hedging motive behind the formation of political connection also makes this activity similar to investment where firm devotes resources in the *current period* for entering into a (semi) durable political network for reaping benefits in the *future* in times of distress. That is, a firm hires and pays politically connected member/personnel before the resolution of uncertainty and its expected benefits arise in the future in the form of favorable financing or bailouts if the firm encounters financial hardship. This contingent benefit in the future in the form of an insurance is the fruit of past investment made for building political connections.

This investment like feature embedded in insurance/hedging framework makes our model different from other papers in the literature. The corporate political activities may take many other forms like campaign financing, lobbying via a third party etc. For discussion of these other forms of political activity and their impact on the firm's rates of return in political market, durability of such connections and other related issues, see **???** and **?**. Moreover, **?** present evidence that campaign contributions and lobbying expenditures do not lead to long-lasting benefits. They show that value of a firm's intangible capital represented by Tobin's q (market to book ratio) bear insignificant relationship to campaign contributions and lobbying expenditure which directly suggests that political connections formed via these routes are temporary and expenditures incurred in this process are often competed away and

mostly they represent expenses but not investment. In the light of these findings, our paper can be generalized by splitting the decision to buy political influence for short- and long-run. The allocation of corporate fund for campaign /lobbying determines short-term objectives and the funds earmarked for appointment of a connected BOD (duration more than a year) can be considered as a forward looking investment[4].

The paper is organized as follows: Section 2 below presents a benchmark model without political connections that discusses the core banking functions of information production, supervision, and firm value. Section 3 introduces political connections to grasp their incremental effects and section 4 pinpoints the equilibrium effects of political connections and advances propositions and empirical hypotheses. Section 5 concludes the paper

2. The Benchmark Model: No Political Connections

In our benchmark case, we have a bank/intermediary (lender) that collects information and advances loans to a firm (borrower), partially secured by collateral. The firm does not have a political connection in any form with which to bail itself out of financial distress. The firm seeks a bank loan to invest in a risky project which requires an investment (I). The main objective in this section is to examine the bank's incentives to gather information about the quality of the firm's project and its impact on firm value. The analysis of this benchmark case allows us to compare the outcome to an environment where the bank's incentives to gather information about the firm's project affects the latter's bid to form political connections and *vice versa* (see section 3).

There are three relevant time periods for the model $\{T_0, T_1 \ and \ T_2\}$. The project begins at (T_0). The decisions to shut down or to continue the project taken at (T_1) is based on the information collected by the bank at that time. At (T_2), uncertainty is resolved and the project, if continued from the earlier phase, either succeeds or fails and the pay-off is distributed between owners of the firm and the bank. The quality of the project is uncertain at (T_0) when it requires funding. At that time, it is known that there are good and bad projects. A good project arrives with probability (e)[5]. A good project always generates cash flow (y) with probability $(Pr = 1)$ at (T_2). A bad or poorer quality project generates the same cash flow at that time but with a

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[4]We are indebted to a referee for pointing out this short-run versus long-run view of political connection.

[5]The term (e) captures the state of the economy or anything else which is beyond the firm's control.

lower probability of success, given by $(0 \leq s_b < 1)$. The probability of arrival of the inferior quality project is $(1 - e)$.

An inferior quality project thus fails with probability $(1 - s_b)$ and, in that case, its liquidation value at (T_2) is (βL). The value of $(\beta < 1)$ captures the bankruptcy costs associated with delays and other frictions due to financial distress. Hence, without additional information, at (T_0), the expected net present value from a project is: $ey + [(1 - e)(s_b y + (1 - s_b)\beta L)] - I$.

The bank or intermediary monitors the project closely and, as a result, can receive a "*signal*" at (T_1) which conveys further information about its quality. The signal, which could take either *high* or *low* value, respectively represents a *good* or *bad* news about the project. If the news is *bad*, the decision is to discontinue the project immediately and the salvage value of the terminated project at (T_1) is $(L < I)$.

We formulate the following assumptions:

$$I > L, \quad and \qquad\qquad\qquad (A)$$
$$L > s_b y + (1 - s_b)\beta L, \quad or$$
$$L[1 - (1 - s_b)\beta] > s_b y \qquad\qquad\qquad (B)$$

The assumption made in (A) above suggests that investment in the project is risky. The second assumption (B) indicates that additional information which conveys *bad* news is useful. The early detection of *bad* projects with a reliable and timely information saves costs for the firm. Hence, the current liquidation value exceeds the expected continuation value of the *bad* project. These two assumptions open up the possibility of gathering information and monitoring of the project by a financial intermediary[6]. Early detection helps in halting *bad* projects before it is too late[7].

The information structure used by the bank/intermediary is summarized by a system of signals which transmit further information about the quality of the project. If the true state of the world is $\omega \in \{good, bad\}$, then signal $\sigma \in \{high, low\}$ consists of a probabilistic perception of the state described as follows:

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[6]We assume that these information gathering activities are specifically an expertise of the bank and not the firm. The banks, being informed lenders, acquire information about projects and monitor them both directly and via imposing covenants. See **?** and **?** for special role of banks followed by several works including **??** and **?** for the information processing role of banks and intermediaries.

[7]Liquidation may involve either sale or restructuring or even going to bankruptcy court (Chapter 7) for early liquidation.

$$Pr.(\sigma = h \mid \omega = G) = 1 \textbf{ and } Pr.(\sigma = \ell \mid \omega = G) = 0$$

$$Pr.(\sigma = h \mid \omega = B) = 1 - \lambda \textbf{ and } Pr.(\sigma = \ell \mid \omega = B) = \lambda$$

The structure of a signal is as such that the intermediary always receives *high* signal (which means that the news is *good*) when the actual state is good. However, the intermediary receives *low* signal (meaning *bad* news) with a probability of (λ) when the state is bad. Thus, $\lambda \in (\frac{1}{2}, 1)$ measures precision of the signal and the cost of acquiring the signal is $(\frac{b\lambda^2}{2})$ where (b) is a constant. The higher the value of (λ), the greater is the value of the precision, signifying smaller error in perception of the actual state of the world. However, it is costlier to obtain a signal with greater precision. Thus banks choose an optimal precision of signal such that incremental gains and costs are equal.

The intermediary thus provides the fund (I) needed to run the project at (T_0) and a manager runs it with the necessary input (i.e. skill and labour). The intermediary collects information at (T_1), ensures the dissolution of the project when it receives *low* signal. The bank allows the project to continue whenever it receives *high* signal. We further assume that the intermediary/bank holds a partially secured debt contract, so that if the project continues and fails, it receives (βL) at (T_2). The pay-off is (L) at (T_1) if the project is discontinued.

Hence, the expected pay-off (π^b) of the bank at (T_0) is:

$$
\begin{aligned}
\max_{\lambda \in (\frac{1}{2},1)} \pi^b \quad &= [e + (1-e)(1-\lambda)s_b]D_f \\
&\quad + (1-e)[(1-\lambda)(1-s_b)\beta L + \lambda L] \qquad (1) \\
&\quad - \frac{b}{2}\lambda^2 - I
\end{aligned}
$$

The first term in the parenthesis captures the joint probability of a *high* signal received by the bank and the success of the project. The firm pays back the bank the face value of the loan D_f. The second term captures two scenarios: One: the bank receives a *high* signal and the project continues but *fails* with the probability $(1-e)(1-\lambda)(1-s_b)$, it recovers a salvage of βL. Two: the bank receives a *low* signal when the project is *bad*, which occurs with probability $(1-e)\lambda$. The project is immediately liquidated at (T_1) and the bank, being the senior and secured creditor, receives (L).

The bank optimally chooses the precision of the signal, (λ), to maximize its expected profit expressed in equation (1). The first order condition for the problem

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is:
$$(1 - e)[L - s_b D_f - (1 - s_b)\beta L] = \lambda b \qquad (2)$$

The left hand side of (2) represents the marginal gains from acquiring more precise signals. The incremental benefit for acquiring such a signal of greater strength is the pay-off from early liquidation, as opposed to the expected pay-off $s_b D_f - (1 - s_b)\beta L$ in case of continuation of a *bad* project. The marginal cost of investing in better information technology is (λb), captured by the right hand side of the same equation. We make the following additional observations:

(i) If the left hand side $(1-e)[L - s_b D_f - (1 - s_b)\beta L]$ is smaller than the right hand side (λb) for all possible values of (λ), then the minimum value of precision of the signal is $(\frac{1}{2} \equiv \lambda_0)$. If the inequality holds in the reverse, then the precision attains its maximum value of 1.

(ii) The optimal precision of the signal acquired by the bank will depend on bankruptcy costs (β), the state of the economy (e) and the level of transparency in acquiring degrees of reliable information, captured by the cost (b).

It is clear from equation (2) that the optimal acquisition of precision of signals will also depend on the face value of the loan, (D_f), which is also an endogenous variable. We add the zero expected profit condition for competitive banks and, together with the first-order condition in (2), they jointly determine the optimal value of the precision of signal and the face value of the loan. This is summarized by the proposition 1 below:

Proposition 1. *The optimal precision of signal and the face value of debt D_f^* are given by:* $\lambda^* = (1 - e)\left[\frac{L - s_b D_f - (1 - s_b)\beta L}{b}\right]$ *and* $[e + (1 - e)s_b]D_f^* + \frac{b}{2}\lambda^{*2} = I - (1 - e)(1 - s_b)\beta L.$

Proposition 2. *(a) The firm value*

$$\pi^f = [e + (1 - e)s_b]y + (1 - e)(1 - s_b)\beta L - \frac{b}{2}\lambda^{*2} + \lambda^*(1 - e)[L - s_b y - (1 - s_b)\beta L]$$

And the incremental firm value due to acquisition of signal by banks is captured by the last two terms. $-\frac{b}{2}\lambda^{*2} + \lambda^*(1 - e)[L - s_b y - (1 - s_b)\beta L]$, *which is the net incremental gain from information based restructuring L rather than continuing that yields a value* $s_b y + (1 - s_b)\beta L$

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3. Political Connections and Financial Markets

This section incorporates political connections in the aforementioned framework to examine their impact on banks' incentive to gather information and the consequences for the firm value. The firm spends resources to form political connections in anticipation of direct intervention from the Government in the event of project failure and firm bankruptcy. The resources spent take the form of employing either politically connected individuals who sit on the board or in various committees for advising and supervision of the project. In other words, the firm in our model buys services of politicians or politically connected individuals who could influence the probability of receiving bailout from the Government if the project fails.

To be specific, a bailout occurs when the firm receives an amount (x) from the Government in the event of business failure. This happens when the banks receive *high* signal but the selected project is of inferior quality and fails with a probability of $(1 - s_b)^8$. The probability of obtaining this bailout fund (x) under these circumstances depends on the fraction of politically connected members working in the firm. If the fraction (t) of such personnel is politically connected, then the probability of obtaining the government bailout fund is given by the function $(f(t) = at^\gamma)$. Where $(a > 0)$ and $(1 > \gamma > 0)$ are constants and indicators of political strength, environment etc. Note that when $(f(0) = 0)$ as done in the preceding section, it suggests that - without any political connection - the probability of receiving a bailout fund is zero [9].

The political connection itself is a "risky asset" because, with the complementary probability $(1 - at^\gamma)$, the firm may not be able to obtain a bailout[10]. Secondly, adding an extra politically connected member to the firm's management team helps because $(f'(t) = a\gamma t^{\gamma-1} > 0)$. However, the incremental probability of obtaining bailout fund declines with addition of extra politically connected people to the firm as $(f''(t) = a\gamma(\gamma - 1)t^{\gamma-1} < 0)$.

We must note that there are differential effects of political connections in dissimilar environment which can be captured by the term a For example, as mentioned

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[8]We omit the discussion of how the Government taxes other firms and costs associated with such transfers. The issues are important but we want to focus on the incentives to acquire information and firm value.

[9]The assumption is not crucial. We can add an exogenous probability of receiving the bail out fund and this will not change any results

[10]We treat the effectiveness of political connections probabilistically, as is could be rendered ineffective by various factors such as negative media coverage or the government being voted out of power or connected BOD fails to perform according to expectation of the firm etc. See for example **?** and **?**.

in the introduction that empirical studies indicate that political intervention is more likely to occur in an economy dominated by the state owned banks (SOB) and we can capture the phenomenon with assumption $a_s > a_{ns}$, where subscripts s and ns stand for SOBs and non- SOBs. We must note that differential economic environments affect returns to political connections as $f'(a) = t^\gamma > 0$

As before, the firm issues debt to finance the project and debt holders charge a face value of (D_p), which is repaid by the firm in the event of success of the project. If the project fails and the political connection succeeds, then the firm receives an amount (x), in the form of Government bailout and this happens with the probability (at^γ). In this case, the firm and its debt holders bargain for a share of the total pie $(x + \beta L)$. We assume that the firm obtains (α) and the bank receives $(1 - \alpha)$ of the total pie[11]. The firm does not receive any bailout with a complementary probability of $(1 - at^\gamma)$ and the debt holders receive the salvage value (βL). This is in fact the amount they would receive when there is no such connections.

The politically connected individuals in the firm receive (w_p) and the rest (non-politically connected members) receive (w_n). We assume that these remunerations are determined by the market for politically connected individuals. With this set-up, the firm's expected pay-off is:

$$
\begin{aligned}
\pi_p^f \quad &= [e + (1-e)(1-\lambda)s_b](y - D_p) \\
&+ (1-e)(1-\lambda)(1-s_b)[\alpha at^\gamma(\beta L + x)] \\
&- w_p t - w_n(1-t)
\end{aligned}
\tag{3}
$$

To recapitulate, at^γ = Political lobbying function; y = cash flow in the event of success; L = liquidation value of the project in the event of failure; e = Probability of arrival of a good project; D_p = face value of the loan; w_p = remuneration of politically connected directors; w_n = remunerations of the non-politically connected persons and I = investment for the project. The subscript "p" in a variable signifies its value in a politically connected firm in the rest of the paper.

If the lenders charge a face value of D_p. their expected pay-off function is:

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[11]We omit the process of division of the total cash flow $(\beta L + x)$ between the firm and its debtors and assume that (α) is exogenous. However, the model could be expanded in that direction without substantial changes in the result of the paper.

$$\pi_p^b = \quad [e + (1-e)(1-\lambda)s_b]D_p$$
$$+ (1-e)\Big[[\lambda L + (1-\lambda)(1-s_b)\{at^\gamma(1-\alpha)(\beta L + x) + (1-at^\gamma)\beta L\}]\Big] \quad (4)$$
$$- \frac{b}{2}\lambda^2 - I$$

The first terms collected within the square brackets are exactly the same as before and thus need no further explanations[12]. The last terms in equations (3) and (4) are new and need explanations. If the selected *bad* project continues upon the receipt of bank's *high* signal, the probability of *failure* is $(1-e)(1-\lambda)(1-s_b)$, so that the firm or the bank files for bankruptcy, then either one of the following two mutually exclusive states occur:

1. The political connection succeeds with probability (at^γ), the firm and the bank respectively share (α) and $(1-\alpha)$ of the total pie, $(\beta L + x)$.
2. The political connection fails with complementary probability and the bank receives (βL) but the firm receives nothing as the 'absolute priority rule (APR) kicks in.

Finally, if the bank receives *low* signal when the project is *bad*, it receives the full liquidation value of the project, (L)[13]. The Bank chooses (λ) to maximize expected pay-off. Hence,

$$\max_{\lambda \in (\frac{1}{2},1)} \pi_p^b = [e + (1-e)(1-\lambda)s_b]D_p$$
$$+ (1-e)\Big[\lambda L + (1-\lambda)(1-s_b)\{at^\gamma(1-\alpha)(\beta L + x) + (1-at^\gamma)\beta L\Big] \quad (5)$$
$$- \frac{b}{2}\lambda^2 - I$$

Equation (5) captures the link between political connection of the firms and their financiers" expected payoffs. For example, the greater the strength of the political connection (*measured by a*), or the greater the fraction of politically connected

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[12]This is due to our assumption that political connections are redundant in the event of success or of liquidation of the project based on early information.

[13]Note when the project continues and fails in the next time period, the bank receives βL., However, if the project continues and fails, an immediate liquidation generates $(L > \beta L)$ for the bank.

individuals/directors (*measured by t*), the more secured is the debt, as the bank recovers a higher fraction of the debt even if the firm is bankrupt. Therefore, political connections of firms directly impact the bank's optimal choice of the degree of precision of signals. This is reflected in the first order condition below:

$$(1 - e)[L - s_b D_p - (1 - s_b)\{\beta L + at^\gamma x(1 - \alpha) - at^\gamma \alpha \beta L\}] = \lambda_p b \qquad (2A)$$

Comparing the above equation (2A) with (2) in page 9 (benchmark model), we observe that the political influence (at^γ) affects optimal acquisition of information, as it enters directly in the first-order condition. It also reduces optimal precision of signal if the bank's incremental gains from a firm's political connections is positive. Proposition 3 below summarizes this effect on the optimal precision of the signal acquired by banks.

Proposition 3. *The political connection of firms will reduce the optimal degree of precision of the signal compared to its absence if $(1 - \alpha)x > \alpha\beta L$, that is, creditors' pay-off from the political bailout exceeds the same with its absence.*

A direct comparison between equations (2A) and (2) establish the results in Proposition 3. If the firm does not employ any politically connected individuals $(t = 0)$, the first-order condition above coincides with the same in (2). We assume the inequality $(1 - \alpha)x > \alpha\beta L$ holds in the rest of the analysis. The condition states that bank's share of the bail out fund exceeds the amount it loses out to the firm's shareholders from the salvage value of the project $(\alpha\beta L)$[14].

We can conclude that (i) political connection of firms leads to a fall in the precision of information acquired by banks and (ii) the loss of incremental precision of the signal is maximum for $(t = 1)$. The intuitive reason is that "political connections" of firms act as an "intangible collateral" and tend to make debt more secured in the case of bankruptcy. Hence the probability that the bank may lose the incentive to gather valuable information about downside risk, captured by a decline in (λ) and (iii) the degree and the magnitude of information loss will be higher in economies dominated by the SOBs where (as discussed before) it is more likely that the inequality $a_s > a_{ns}$ might hold true. Finally, it is evident from (2A) that optimal precision of the signal (λ_p) acquired by the bank also directly depends on the degree of political connections

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[14]The assumption is that banks participate in the bailout programme to share the pie, otherwise as senior creditors, they might veto against such activities.

of the firm (t). Next we turn to the analysis of the firm's trade-off that determines the degree of political connections.

3.1. Firm's Political Connections:

When a firm chooses the optimal level of political connection, (t) it takes
(i) the degree of information precision acquired by the bank (λ_p) to be given.
(ii) (D_p) to be such that the bank makes a break-even. Thus, firm's expected pay-off is:

$$
\begin{aligned}
\pi_p^f &= [e + (1-e)(1-\lambda)s_b](y - D_p) \\
&+ (1-e)(1-\lambda)(1-s_b)[\alpha a t^\gamma (x + \beta L] - w_p t - w_n(1-t)
\end{aligned}
\tag{6}
$$

By inserting (D_p) from the zero expected profit of the bank (i.e. setting the equation (4) equal to zero), into equation (6) above, we obtain the expected profit of the firm (7) and the firm now chooses (t) to maximize the expected pay-off:[15]

$$
\begin{aligned}
\max_{\{t\}} \pi_p^f &= [e + (1-e)(1-\lambda)s_b]y \\
&+ (1-e)[\lambda L + (1-\lambda)(1-s_b)\{at^\gamma x + \beta L\}] \\
&- w_p t - w_n(1-t)
\end{aligned}
\tag{7}
$$

and the first-order condition is:

$$
t : (1-e)(1-\lambda)(1-s_b)a\gamma t^{\gamma-1} x - (w_p - w_n) = 0
\tag{8}
$$

Equation (8) apparently captures the similarity between "hedging" and political connections. If the firm becomes financially distressed, which occurs with probability $(1-e)(1-\lambda)(1-s_b)$ replacing a non-politically connected person with someone connected increases the probability of bailout (of receiving x) by $a\gamma t^{\gamma-1}x$. However it incurs an extra cost of $(w_p - w_n)$ for buying "political patronage" . At the optimum both should be equal.

---

[15]It can be noted that the model and the firm's expected pay-off (given in equation (7)) concides with the benchmark model of the section 2 without political connection with $t = 0$, i.e., when the firm does not have a politically cnnected member in either BOD or in payroll.

Hence, $t^* = \left(\frac{(1-e)(1-\lambda)(1-s_b)\gamma ax}{(w_p-w_n)} \right)^{\frac{1}{1-\gamma}}$ and the probability of receiving bail out via

politically connected board member is: $at^{*\gamma} = \left(\frac{((1-e)(1-\lambda)(1-s_b)\gamma ax}{(w_p-w_n)} \right)^{\frac{\gamma}{1-\gamma}}$.

For simplicity, we will be working with $\gamma = \frac{1}{2}$ for the clarity of the exposition, in which case, $t^* = \left(\frac{(1-e)(1-\lambda)(1-s_b))a\frac{x}{2}}{(w_p-w_n)} \right)^2$ and $at^{*\frac{1}{2}} = a\left(\frac{(1-e)(1-\lambda)(1-s_b)a\frac{x}{2}}{(w_p-w_n)} \right)$

Proposition 4. *(i) The incremental firm value attributed to political connection for the case $\gamma_0 = \frac{1}{2}$ is*

$$(1-e)(1-\lambda)(1-s_b)at^{*\gamma}x - t^*(w_p - w_n) = \left(\frac{(1-e)(1-\lambda)(1-s_b)a\frac{x}{2}}{(w_p - w_n)} \right)^2$$

(ii) The firm tends to employ a greater fraction of politically connected individuals in response to a larger bailout fund and the fraction tends to increase with the strength of the political connection (a), but decreases with a relative rise in the compensations of the politically connected individuals vis-a-vis non connected members $(w_p - w_n)$.

4. Equilibrium: The value of the Firm and Political Connections

The Proposition 4, above shows that the firm's optimal political connectivity t^*, depends on bank's acquisition of informtion given by the precision of the signal (λ_p). Similarly, proposition 3 shows the optimal precision of the signal acquired by the bank also explicitly depends on the firm's political connections at^{γ}. Intuitively, an increased strength of political connections of the firm will reduce the optimal precision of banks' signal because the loan is now more secured due to the possibility of a bailout. In a similar way, a lower precision of bank's signal, as the proposition 4 shows will increase the firm's optimal level of political ties. A lower precision of the signal will make banks mistake the low quality project for a high quality one more frequently. The firm will thus experience more project failures and bankruptcies which make the political connections more profitable. The upshot of the propositions 3 and 4 is that the optimal selection of precision of the bank's signal and the optimal political connections of the firm are interdependent and thus they are determined in Nash equilibrium.

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Proposition 5 below resolves the interdependence between λ_p^*, D_p^*, t^*. Proposition 6 expresses the equilibrium value of the firm as a function of banks information precision and firms degree of political connection.

Proposition 5. *The tuple $\{\lambda_p^*, D_p^*, t^*\}$ get determined by (i) the bank's zero expected profit condition, (ii) optimal degree of precision of signal acquired by the bank, and (iii) firm's optimum level of political connections. The conditions are fulfilled by the following sets of equations.*

$$[e + (1-e)s_b]D_p + \frac{b}{2}\lambda_p^{*2} + (1-e)(1-s_b)[\beta L + (1-\lambda_p^*)Z] - I = 0$$

$$(1-e)[L - s_b D_p - (1-s_b)\{\beta L + (1-\lambda_p^*)Z\}] - \lambda_p^* b = 0$$

and

$$t^* = \left(\frac{(1-e)(1-\lambda)(1-s_b)a\frac{x}{2}}{(w_p - w_n)}\right)^2$$

Where $Z = \{x(1-\alpha) - \alpha\frac{\beta L}{x}\}\left(\frac{(1-e)(1-s_b)\frac{1}{2}(ax)}{(w_p - w_n)}\right)^2$ is a positive number given the parameters.

Proposition 6. *The corresponding equilibrium firm value π_p^f is:*

$$[e + (1-e)s_b]y + (1-e)(1-s_b)\beta L$$

$$+ (1-e)\lambda_p^*\left[L - s_b y - (1-s_b)\beta L\right] - b\frac{\lambda_p^{*2}}{2}$$

$$+ (1-\lambda_b^*)^2 \frac{1}{2(w_p - w_n)}\left[(1-e)(1-s_b)ax\right]^2$$

5. Discussions and Empirical Implications

Propositions 5 and 6 outline the optimal determination of political connections of the firm and the degree of information acquisition of banks, as well as their combined impact on equilibrium firm value. Proposition 5 shows that optimal precision of bank's signal, face value of its loan and political connections of the firm are determined simultaneously. We formulate these relationships as functions of deep parameters such as costs of information acquisition (b), the strength of political connections

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(a) and the state of the economy $(1-e)$. That is, a country's corporate governance laws on information disclosures, political atmosphere (e.g., predominance of SOBs) and the state of overall economic condition decisively determine i) the extent of firm's political connections, ii) banks' pay-off, iii) supervision and monitoring technology. iv) and finally, their collective impact on the firm value. For example, opaque laws of disclosures for firms or a non-transparent accounting system in a country will raise the banks' cost of acquisition of information (b) about the state of firm's projects. This will result in a lower value of λ_p^* (can be observed from the equation (2A)) As a consequence, it is more likely that bad projects will continue and not be liquidated.

The increased likelihood of an unfavorable scenario (stemming from a higher cost of information acquisition (b)) thus makes the expected pay-off from incremental political connections greater from the firm's point of view, which can be directly inferred from expression for t^*. Thus, the trade-off between information-based monitoring of the project (i.e. acquiring a better signal) and political connection will tilt in the favour of the latter in a country with weak disclosure laws and lack of transparencies.

Similarly, an increased premium paid to the politically connected agents, measured by a larger magnitude $(w_p - w_n)$ (in economies where the connected individuals are scarce), would make the incremental costs of political connections larger and will prompt the firm to spend less resources in building up such links. This, in turn, will lower the probability of obtaining bailout funds and result in a lower pay-off in bankruptcy for both firms and the banks and would make loans less collateralized and secure. This will encourage banks to invest further resources to obtain more precise signal resulting in a higher (λ_p^*). Thus, a higher premium paid to politically connected persons moves the trade-off more towards information-based bank supervision and monitoring.

We presented substantial empirical evidence that political connections tend to be more frequent in economies dominated by the SOBs. In the parlance of our framework, this will translate into a higher value of (a) which implies that the connection tends to be stronger for a given composition of BOD (t) for such economies. It can be directly seen from the equation (8) that the marginal value of political connections will be larger, leading to a higher composition of politically connected BOD/personnel and will result in a greater value of t^* and $at^{*\frac{1}{2}}$. This will result in lower precision of signal acquired by the bank as can be seen from equation (2A). Hence, state intervention in the banking system will move the trade-off towards more political connections and lesser quality of banking services.

The extent of political connections and information-based monitoring in equilibrium also depends on the state of the economy captured by the term $(1-e)$.

If the state of the economy is poor, it implies that the probability of arrival of a poorer quality project is higher. Accordingly, a better and precise information has a greater incremental value for the bank which will further invest to acquire error-proof technology for monitoring firms. However, the impact on the firm's investment in political connection in anticipation of a poor state of the economy tends to be ambiguous. The likelihood of worse prospects for the economy increases the incremental value of hedging via political connections. On the other hand, the bank's increased bid to acquire a more precise signal leads to the greater possibility of liquidation of projects, which in turn discourages the firm to investing in building up political connections. The equilibrium political connections, in this case, will depend on the relative strength of the two opposing effects.

The empirical predictions made so far from the equilibrium analysis of the model can be directly interpreted and analyzed by putting Propositions 5 and 6 together. The propositions succinctly capture the inverse relation between the degree of political connections of firms and information-based supervision by banks, which is the central theme of the paper. The proposition 6 breaks down firm value into three components: (i) The first term in the expression are NPV of the project (ii) the second term $L - s_b y - (1 - s_b)\beta L - \frac{b\lambda_p^{*2}}{2}$ is the bank's incremental net contribution to firm value from supervision and monitoring technology through a better information precision.

The last term captures the firm value attributed to political connections. The expression in proposition 6 highlights two important features which convey the essence of the paper: First, it can seen that while the magnitude from bank's contributions to the firm's NPV are multiplied by λ_p^*, the same component from political contribution is weighed by $(1 - \lambda_p^*)^2$. Since the proposition 3 establishes that $\lambda_p^* < \lambda^*$, we conclude that the political sources form greater part of the value of the connected firms and bank's contribution to incremental firm value declines as a consequence. This signifies the trade-off between quality of banks' services and political intervention in financial markets as the former displaces information based bank lending. Second, a marginal decline in the strength of signal magnifies the impact on the effectiveness of political connectivity implying that trade-off is much more pronounced at a lower level of bank's information-based lending activities.

Thus, combining proposition 5 and 6 together, we find that the incremental firm value places weight of (λ_p^*) to information-based supervision. However, it places a greater weight $(1-\lambda_p^*)^2$ on political connections. Where, λ_p^* depends on fundamentals such as costs of acquisitions of information (b), state's ownership role in banking, costs of political connections $(w_p - w_n)$, and the state of the economy, $(1-e)$. Based on the discussion of the implications of these two propositions, we can summarize

our empirical predictions in the form of following hypotheses:[16]:

1. The larger the costs of acquiring information, (b) (resulting from weak disclosure laws), the lower the precision of signal. The bank's signal is less informative and the firm will tend to have a higher degree of political connection.
2. The greater the state invention in the overall financial system, the larger the strength of the political connections, the lower the precision of the bank's signal. This hypothesis captures the hidden costs of strength of political ties likely to be observed in economies with state ownership of banks.
3. The tighter the economic condition, the higher the quality of bank monitoring on firms. The impact on the political connections of firms is ambiguous.
4. The lower the premium paid to the connected individuals, the larger the political connections and the smaller is the value of banks' signal, signifying the greater contribution of the former towards the firm value.

6. Conclusion

Political connections are almost ubiquitous. However, their origins and the causes of their appearance vary across economies and countries, depending on the a country's economic, political and legal settings. We have shown that hedging and enhancing the collateral value of its loan motivate the firm to form political connections. It also comes at a cost in the form of slackening banks' information-based oversight of firms' projects. We demonstrated that such a trade-off would vary across different economic states, political and legal circumstances and have advanced hypotheses for testing the differential impacts on the emergence of political connections in financial markets and their effects on firm value. As a policy implication, the paper issues an advisory warning against bank nationalization which is quite popular in many emerging markets as means to enhance social welfare and banking stability. A major conclusion obtained in the paper is that such decisions often impose hidden costs on the economy which impair banks' core functions of information acquisition and may outweigh any possible gains.

The model is simple yet general and straightforward enough to extend our results to the most interesting cases such as the relationship between political connections and firm's incentive to boost effort or private gains of its owners. It would also be

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[16]In the appendix B, we prove hypothesis 1. We omit the proof of the other hypotheses in the text as they are the replicate one another. However, proof can be obtained upon the request from the author.

interesting to examine the role of competition among firms impact in formation of political connections. In our future research, we plan to address these problems and issues in greater detail.

APPENDIX A

Proof. (Proposition 1) The equilibrium must satisfy the bank's expected zero profit condition is

$$
\begin{aligned}
&[e + (1-e)(1-\lambda^*)s_b]D_f \\
&+ (1-e)[\lambda^* L + (1-\lambda^*)(1-s_b)\beta L \\
&- \frac{b}{2}\lambda^{*2} - I = 0
\end{aligned}
\tag{A.1}
$$

and the bank's optimality conditions for the choice of λ:

$$
(1-e)[L - S_b D_f - (1-s_b)\beta L] = \lambda^* b
\tag{A.2}
$$

Rewriting equation (A.1), we get:

$$
\begin{aligned}
&[e + (1-e)]D_f \\
&+ (1-e)\lambda^*[L - s_b D_f - (1-s_b)\beta L] \\
&+ (1-e)(1-s_b)\beta L - \frac{b}{2}\lambda^{*2} - I = 0
\end{aligned}
$$

Using (A.2) in the above expression, we get:

$$
[e + (1-e)]D_f + \frac{b}{2}\lambda^{*2} - I - (1-e)(1-s_b)\beta L = 0
\tag{A.3}
$$

∎

Proof. (Proposition 2) By inserting the value of D_f from above equation into, firm's expected profit yields: $\pi^f = [e + (1-e)s_b]y + (1-e)(1-s_b)\beta L + \frac{b}{2}\lambda^{*2} - \lambda^* s_b(1-e)(y - D_f^*)$ ∎

Proof. (Proposition 3) The firm's expected profit is:

$$
\begin{aligned}
\pi_p^f &= [e + (1-e)s_b](y - D_p) \\
&+ (1-e)(1-\lambda)(1-s_b)at^\gamma \alpha\{\beta L + x\} \\
&- w_p t - w_n(1-t)
\end{aligned}
\tag{A.4}
$$

The expected profit of the bank is:

$$\begin{aligned}
\pi_p^b \quad &= [e + (1-e)(1-\lambda)s_b]D_p \\
&\quad + (1-e)[\lambda L + (1-\lambda)(1-s_b)\{x(1-\alpha)at^\gamma - \alpha\beta Lat^\gamma\}] \\
&\quad - \frac{b}{2}\lambda^2 - I
\end{aligned} \tag{A.5}$$

Setting the expected profit of the competitive banks equal to zero and plugging the resultant value of D_p into (A.4), we get the firm's expected pay-off as:

$$\begin{aligned}
\pi_p^f \quad &= [e + (1-e)(1-\lambda)s_b]y - \frac{b}{2}\lambda^2 \\
&\quad + (1-e)[\lambda L + \{(1-\lambda)(1-s_b)(\beta L + at^\gamma x)\}] - tw_p - (1-t)w_n
\end{aligned} \tag{A.6}$$

Maximizing (A.6) with respect to t yields:

$$t^* = \left(\frac{(1-e)(1-\lambda)(1-s_b)\gamma ax}{(w_p - w_n)}\right)^{\frac{1}{1-\gamma}}$$

Using $\gamma = \frac{1}{2}$ in the above expression, we get the expression for t^* in the proposition, $t^* = \left(\frac{(1-e)(1-\lambda)(1-s_b)a\frac{x}{2}}{(w_p-w_n)}\right)^2$ and $at^{\frac{1}{2}} = a\left(\frac{(1-e)(1-\lambda)(1-s_b)a\frac{x}{2}}{(w_p-w_n)}\right)$ ∎

Proof. (Proposition 5) Equilibrium: Equilibrium in the model consists of a tuple $\{D_p^*, \lambda_p^*, t^*\}$ such that (i) the firm's expected pay-off is at a maximum, (ii) the bank has obtained an optimal degree of precision of precision of signal, (iii) the competitive banks earn zero profit in expectations. As shown in the body of the paper, that for a given level of (D_p) and (t), the banks choose the optimal degree of precision of signal (λ_p^*) to maximize their expected pay-off in (A.5) and the corresponding first-order condition rewritten here below:

$$(1-e)[L - s_b D_p - (1-s_b)\{\beta L + (1-\lambda_p^*)Z\}] - \lambda_p^* b = 0 \tag{A.7}$$

and from proposition 3 $t^* = \left(\frac{(1-e)(1-\lambda)(1-s_b)a\frac{x}{2}}{(w_p-w_n)}\right)^2$

Next, rewriting (A.5) as

$$
\begin{aligned}
\pi_p^b \quad &= [e + (1-e)s_b]D_p \\
&+ (1-e)\lambda[L - s_b D_p - (1-s_b)\{\beta L + at^\gamma x(1-\alpha) - \alpha at^\gamma \beta L\}] \\
&+ (1-e)(1-s_b)\{\beta L + at^\gamma x(1-\alpha) - \alpha at^\gamma \beta L\} - \frac{b}{2}\lambda^2 - I
\end{aligned}
$$

and then by using the λ_p^* from (A.7), we have

$$
\begin{aligned}
&[e + (1-e)s_b]D_p + \frac{b}{2}\lambda_p^{*2} \\
&+ (1-e)(1-s_b)[\beta L + at^\gamma\{x(1-\alpha) - \alpha\beta L\}] - I = 0
\end{aligned}
$$

Finally using $\gamma = \frac{1}{2}$ and the expression $at^{\frac{1}{2}}$ from proposition 3, we obtain:

$$
[e + (1-e)s_b]D_p + \frac{b}{2}\lambda_p^{*2} + (1-e)(1-s_b[\beta L + (1-\lambda_p^*)Z - I = 0 \tag{A.8}
$$

Where $Z = \{x(1-\alpha) - \alpha\frac{\beta L}{x}\}\left(\dfrac{(1-e)(1-s_b)\frac{1}{2}(ax)}{(w_p - w_n)}\right)^2$

Similarly, (A.7) can be written after using proposition (3) as:

$$
(1-e)L - (1-e)s_b D_p - (1-e)(1-s_b)\beta L + (1-\lambda_p^*)Z - \lambda_p^* b = 0 \tag{A.9}
$$

and from proposition 3

$$
t^* = \left(\frac{(1-e)(1-\lambda_p^*)(1-s_b)a\frac{x}{2}}{(w_p - w_n)}\right)^2 \tag{A.10}
$$

The tuple D_p^*, λ_p^*, t^* is determined by the solution to system of equations given in (A.8) - (A.10). Where $Z = x\{(1-\alpha) - \alpha\frac{\beta L}{x}\}\left(\dfrac{(1-e)(1-s_b)\frac{1}{2}(ax)}{(w_p - w_n)}\right)^2$ ■

APPENDIX B

The tuple D_p^*, λ_p^*, t^* is determined by the solution to system of equations given in (A.8)-(A.10) in proposition 5 of Appendix A. By implicitly differentiating these equations with respect to firm value with respect to b, we find:

$$-(1-e)s_b\frac{dD_p}{db} - [b-Z]\frac{d\lambda_p^*}{db} = \lambda_p^*$$

$$\left[e+(1-e)s_b\right]\frac{dD_p}{db} + \left[\lambda_p^*b - Z\right]\frac{d\lambda_p^*}{db} = \frac{\lambda_p^{*2}}{2}$$

Solving implicitly these two equations, we get:

$$\frac{\lambda_p^*}{db} = \frac{\lambda_p^*e + (1-e)s_b\left(1-\frac{\lambda_p^*}{2}\right)}{\Delta} < 0 \tag{B.1}$$

$$\frac{dD_p}{db} = \frac{b\frac{\lambda_p^{*2}}{2} + \left(1-\frac{\lambda_p^*}{2}\right)Z\lambda_p^*}{\Delta} > 0 \tag{B.2}$$

Where

$$\begin{aligned}\Delta &= (Z-b)[e+(1-e)s_b] + (b\lambda_p^* - Z)(1-e)s_b \\ &= -b(1-e)s_b(1-\lambda_p^*) + e[Z-b] < 0\end{aligned} \tag{B.3}$$

and

$$Z = \{x(1-\alpha) - \alpha\beta L\}\left[\frac{(1-e)(1-s_b)\frac{1}{2}(ax)}{(w_p-w_n)}\right]^2 \tag{B.4}$$

Impact on the incremental firm value: The equilibrium incremental firm value as given in Proposition 6 is rewritten below.

$$\begin{aligned}\pi_p^f = \ &[e+(1-e)s_b]y + (1-e)(1-s_b)\beta L \\ &+ (1-e)\lambda_p^*\left[L - s_by - (1-s_b)\beta L\right] - b\frac{\lambda_p^{*2}}{2} \\ &+ (1-\lambda_b^*)^2\frac{1}{2(w_p-w_n)}\left[(1-e)(1-s_b)ax\right]^2\end{aligned} \tag{B.5}$$

The impact of a change in the costs of acquiring a more precise signal is given by

the following expression.

$$\frac{d\pi_p^f}{db} = \left[\{L - s_p y - (1 - s_b)\beta L - \lambda_p^*\} - \frac{1 - \lambda_p^*}{w_p - w_n}\{(1 - e)(1 - s_b)ax\}^2\right.$$
$$\left.\right]\frac{d\lambda_p^*}{db} \tag{B.6}$$

The first term inside the bracket, $\{L - s_p y + (1 - s_b)\beta L\}$ is the incremental gain from added information and is positive from the condition (A) in the first section of the paper. The second term is the incremental gains from political connection (as shown in the proposition 6). Since $\frac{d\lambda_p^*}{db} < 0$, the sign of $\frac{d\pi_p^f}{db}$ will depend on whether "political connections" effect dominates the "information gathering" effects of banks.

The other hypothesis can be proved with the similar methods and reasoning. For example, the hypothesis 2 which highlights the possible political impact of the state ownership on the precision of bank's signal. Following the same method, it can be shown that $\frac{d\lambda_p^*}{da} = \frac{\frac{dZ}{da}e}{\Delta} < 0$.

Acknowledgement

References