



Institutions and soft budget constraints

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Abstract: This paper presents a model of soft budget constraints (SBC) in a bank lending relationship, emphasizing the role of institutions in shaping the SBC phenomena. The model allows two types of SBC to emerge according to specific constellations of parameters: the SBC as a dynamic commitment problem and the SBC as an external assistance problem. The paper sheds light on issues such as the political intervention in private contracts, the design of bankruptcy procedures, the cross-subsidization among social groups through the credit system, and the privately-owned versus State-owned bank dichotomy.

JEL classification: D21, D23, D72, G21, G33, L14.

Keywords: Institutions, Soft Budget Constraints, Bank Lending, State-owned Banks, Bankruptcy Procedures.

1. Introduction

The term soft budget constraints (SBC) refers to the persistent bail out of organizations by a third party, which can be governments, banks, upper hierarchical stages, and so on. It was originally coined by Kornai (1986) to explain a recurrent phenomenon pervasive to socialist economies but further developments extended this issue to other kind of economies.

Kornai (1986, 1992) suggest a “paternalistic view” of the SBC. It points out that the decision to soften budget constraints emerges from the concern of

governments by employment and the need to gain political support. SBC are seen as a particular characteristic of the government, which acts in a paternalistic way towards economic agents. They constitute a social relation in which a budget constrained agent expects to receive external financial assistance through several means such as “soft subsidies”, “soft taxation”, “soft credit”, and “soft administrative pricing.”¹

Kornai (1986, 1992, 1998) emphasize two characteristics of SBC. First, they arise in a vertical relationship: “Paternalism, and soft budget constraint as one manifestation of it, is a typical social relation between superior and subordinate, higher authorities and management of the firm.” (Kornai, 1992, p. 144). Second, it is mainly a problem of expectations: what is important for SBC is not a particular outcome but the result of a dynamic experience of society. In Kornai’s words: “The BC [Budget Constraint] is rightly called soft only when whole groups of firms are rescued frequently, bail-outs occur time and again over a long period, in a foreseeable fashion, and the collective experience of these rescues become imprinted in management expectations.” (Kornai, 1998, p. 534)

A complementary interpretation developed by Shaffer (1989) and Dewatripont and Maskin (1995) suggests that SBC can arise endogenously as a “dynamic commitment problem.” They stress that SBC are a dynamic renegotiation issue in which sunk costs make beneficial to renegotiate the initial contract *ex post*, although renegotiation is *ex ante* inefficient. Here, the source of SBC is the inability of agents to commit not to renegotiate after some costs are sunk.

The formal literature focuses on the explanation of the effects of SBC and on different remedies to tackle them.² In this paper, we contribute to this literature by proposing a simple setting to analyze the emergence of SBC. Institutions are an essential component of our analysis. The political, social and economic institutions generate the motives behind the formation of the SBC. They provide the incentive structure of an economy and shape the direction of economic change (North, 1990,

¹ In this line, Desai and Olofsgård (2006) argue that SBC exist because some politicians are not good at promoting job creation. As a result, they resort to firm subsidies to decrease the rate of job destruction. In a similar vein, Robinson and Torvik (2009) present a model in which politicians use SBC to refinance poor projects in order to gain political support.

² The literature includes the analysis of the optimal input demand and the emergence of shortage (Kornai, 1986; Goldfeld and Quandt, 1988; Pun, 1995), the decentralization of government (Qian and Roland, 1998), the impact on research and development activities (Huang and Xu, , 1999), the incentives upon hierarchies (Bai and Wang, 1998), the behavior of the banking system (Berglöf and Roland, 1997, 1998; Mitchell, 2000), and the financing of firms and banking (Dewatripont and Maskin, 1995; Povel, 2004; Berglöf and Roland, 1998; Dewatripont and Roland, 2000; Rizov, 2002). Alternative literature reviews can be found in Shaffer (1998); Berglöf and Roland (1998); Dewatripont and Roland (2000); Roland (2000), and Kornai, Maskin, and Roland (2003).

1994). Institutions set up the constraints for the political system to act upon the structure of property rights, and thereby determine the nature and extent of transaction costs (Williamson, 1996). Our model allows to generate both the *external assistance* (i.e., paternalistic) and the *dynamic commitment* views of the SBC depending on the value of the institutional parameters.

We propose a formal model of a bank lending relationship. The model allows to generate alternative regimens in which refinancing bad projects does not take place, refinancing is chosen by the bank (hence, SBC are the result of a dynamic commitment problem), refinancing is imposed by politicians (hence, SBC are the result of an external assistance problem), and there exist socially undesirable credit rationing. When politicians are not willing or able to alter existing rules, the core of the SBC problem is just the inability of the bank to credibly tie its hands in order not to bail out borrowers. Institutions become particularly relevant when SBC emerge as an external assistance problem. Here, the bank lending relationship takes place within an environment in which politicians may be able to alter the rules of the game, i.e. to soften the financial constraints of firms and individuals. Institutional environments in which economic returns can easily be secured through political channels encourage individuals to reallocate resources from economic to political activities, leading to less economically productive investment. When the SBC regime is not socially desirable and politicians are able to alter existing rules, SBC might be imposed by politicians. In this setting, the role of institutions is crucial to determine the degree in which SBC can be imposed or mitigated. Weak institutions promote “bad” managers to submit their projects, but they also affect the bank’s behavior, since it anticipates the politicians’ actions.

In the latter framework, the burden of softening financial constraints should be finance through interest rates and the tax-subsidy system. Due to institutional reasons, politicians have an incentive to maximize the use of the former, since the latter has to be done in a more transparent and explicit manner. Again, weak institutions (e.g., lack of transparency and accountability) facilitate the redistribution process and promote lobbying activities to get financial constraint softened. In this case, State-owned banks could be used as an instrument to soften financial constraints because it is institutionally different to “force” a private bank than a State-owned bank to refinance. The imposition of refinancing to a privately-owned bank should be done through the legal arena, and the bank should be compensated through the tax-subsidy system. Meanwhile, a State-owned bank

can be instructed to behave in accordance to the politicians' preferences, particularly when the institutional environment is weak.

Finally, our analysis has also implications for the design of bankruptcy procedures. The model suggests that, if the institutional endowment is weak, a hard bankruptcy regime (probably reasonable in term of the rules of the game) might be not socially beneficial once the play of the game is observed. A hard regime without strong institutions promotes lobbying activities and increases the probability of ending up in a SBC equilibrium.

The paper is organized as follows. Section 2 presents the formal model. Section 3 analyzes the importance of institutions to explain the emergence of the SBC. Section 4 introduces extensions and discusses several issues: the consequences of the SBC to the design of bankruptcy procedures, the implications of the SBC for the cross-subsidization among interest groups, and the consequences of bank ownership for the emergence of the SBC. Finally, Section 5 makes some final remarks.

2. The Model

The model has three types of agents: a firm who owns a project and needs financing, a bank that decides whether or not to fund the project, and politicians that seek support from citizens.

2.1 The bank lending relationship.

The bank lending relationship takes the following shape. In period 1, the firm decides whether or not to submit its project for funding. In turn, if a project is submitted the bank makes its decision.

Projects are of two types: good with probability α and bad with probability $(1-\alpha)$. The distribution of types of projects in the economy is common knowledge. However, the type of a specific project is the firm's private information.

If the bank chooses to finance the project, the firm receives a loan L which, for simplicity, is normalized to one ($L=1$). In this case, the firm gets a private benefit³

³ For simplicity, we neglect potential moral hazard problems implied by the firm's manager ex post actions.

$$\pi^F = B.$$

The bank gets the net value of the project

$$\pi^B = \tilde{R} - L,$$

where \tilde{R} is the (random) return from the project.

In period 2, if funded, a good project yields a return $\tilde{R} = R_G > 1$ to the bank and a private benefit $B_G > 0$ to the firm. By contrast, a bad project yields no monetary return and could be liquidated or refinanced. If it is liquidated, the bank gets a liquidation value $\tilde{R}_L \geq 0$, which follows a cumulative distribution function G_L . In this case, the firm loses its reputation, which is represented by a negative private benefit, $B_L < 0$. If the bad project is refinanced, the firm receives an additional unit of loans (hence, $L=2$). In this case, the return to the bank is $\tilde{R}_S \geq 0$, which follows a cumulative distribution function G_S , and the private benefit of the firm is $B_S > 0$.

2.2 Social welfare.

If a project is undertaken, it generates positive effects on the rest of the economy. They include, for instance, the social benefits of keeping project's workers employed. For example, there can be large social costs (e.g., delinquency and crime) derived from the marginalization of unemployed people (see Roemer, 1996). We denote these positive effects E .

If the bank does not receive a return that compensates the loan, it makes losses, which may determine the failure of the bank. Bank failures usually entail huge social costs and impose negative externalities on the rest of the economy (e.g., disruption in the payment system and lack of access to credit by productive firms during financial crises).⁴ We denote these negative effects F .

These spillover effects assume different values according to the outcome of the bank lending relationship. In particular, the positive effect, E , is equal to zero

⁴ See, for example, Laeven and Valencia (2008) and the references therein for information about the social costs of banking crises.

when the project is liquidated and it is positive otherwise. The negative effect, F , is equal to zero when the project is good, when it is liquidated and $R_L > 1$, and when it is refinanced and $R_S > 2$. F is positive otherwise.

Social welfare (denoted W) is equal to the sum of the surpluses of the firm and the bank plus the spillover effects that arise from the bank lending relationship. Formally, social welfare can be written as

$$W \equiv R + B + E - F - L,$$

where R is a realization of \tilde{R} .

2.3 The objective function of politicians.

Politicians are interested in maximizing expected social welfare, but they are also concerned about staying in office. Therefore, politicians embody the voters' perceptions about economic outcomes into their objective function in order to maximize their chances of being reelected. Voters assign higher weights to current economic outcomes (e.g., employment) than to future, perceived as unlikely outcomes (e.g., bank failures).⁵ Hence, politicians adjust their objective function in order to give more weights to current economic outcomes than to future outcomes.

We model the behavior of politicians through two parameters: $q \geq 1$ which represents the degree in which politicians overestimates the current, positive effects of undertaken a project, E , and p , with $0 \leq p \leq 1$, which represents the degree in which politicians underestimates the future, negative effects, F . Hence, the politicians' objective function can be written as

$$V \equiv R + B + qE - pF - L.$$

2.4 Institutional environment.

The institutional environment sets up the main constraints for political intervention. Institutions include the nature and quality of the government and the judicial system, formal and informal norms, the dominant ideology, the character and balance of the contending interests within the society, and the administrative capabilities (North, 1994). They facilitate or restrain the ability of politicians to

⁵ See, for example, Hibbs and Vasilatos (1982), and the references therein, for justifications of this voters' behavior.

implement their own agenda. From here on, we interpret that a higher quality of institutions implies that politicians find it more difficult to implement their private agenda when it is not consistent with social welfare.

We model the institutional strength of an economy through a parameter σ , with $0 \leq \sigma \leq 1$. Therefore, the ability of politicians to impose their agenda (in this case, to softening the budget constraint of a firm) is measured by $1 - \sigma$. In particular, when there is a conflict of interests between the bank and politicians respect to refinancing a firm, we assume that there is a probability σ that a bad project be liquidated and a probability $1 - \sigma$ that it be refinanced.

2.5 Notation.

In order to simplify notation hereafter, we define the expected social welfare and the expected value of the objective function of politicians in the three cases under analysis: (a) the project is good, (b) a bad project is liquidated, and (c) a bad project is refinanced.

$$\begin{array}{ll}
 \text{(a)} & W_G \equiv R_G + B_G + E - 1 & V_G \equiv R_G + B_G + qE - 1 \\
 \text{(b)} & W_L = R_L + B_L - F G_L(1) - 1 & V_L = R_L + B_L - p F G_L(1) - 1 \\
 \text{(c)} & W_S = R_S + B_S + E - F G_S(2) - 2 & V_S = R_S + B_S + qE - p F G_S(2) - 2
 \end{array}$$

where R_L and R_S are the expected values of \widetilde{R}_L and \widetilde{R}_S respectively.

3. Institutions and the emergence of soft budget constraints

In this section, we analyze how institutions determine the emergence of SBC as a dynamic commitment problem and as an external assistance problem.

3.1 Soft budget constraints as a dynamic commitment problem

A key element in period 2 is the bank's incentives to refinance, which is at the core of the interpretation of SBC as a dynamic commitment issue. We refer to the inability of the bank to commit itself not to extend further credit to the firm after providing initial funding even if they both realize that the project is bad. Due to the asymmetric information framework, the bank decides whether or not to fund the project without screening its quality. If the bank would know *ex ante* that the project was bad, it would not fund it in the first place. However, given the sunk nature of the initial funding, there arises a discrepancy between the *ex ante* and the *ex post* criteria which characterizes the SBC as a problem of temporal

inconsistency of decisions. Hence, the bank is willing to refinance a bad project if the net monetary returns from it is larger than those from liquidation. In our model, this is the case when $R_L \leq R_S - 1$. Additionally, all projects will be initially funded by the bank if the probability of supporting a good project is high enough. The following proposition characterizes the conditions under which SBC emerge as a dynamic commitment problem.

Proposition 1. (SBC as a dynamic commitment problem.) If $R_S < 2$, $R_L \leq R_S - 1$ and $\alpha \geq \frac{2 - R_S}{R_G - R_S + 1} \equiv \underline{\alpha}^{DC}$, there is an equilibrium in which good and bad projects are submitted, the bank finances all projects in period 1 and refinances all bad projects in period 2.

Proof. We proceed by backward induction. In period 2, once the bank realizes that a project is bad, it refinances that project because $R_L \leq R_S - 1$, although it is ex ante inefficient to refinance bad projects because $R_S < 2$. In period 1, a firm with a good project always submits it to the bank. A firm with a bad project submits it because it is sure of being refinanced in period 2 and $B_S > B_L$. The bank finances all projects if $E(\pi^B) = \alpha[R_G - 1] + (1 - \alpha)[R_S - 2] \geq 0$. Rearranging terms,

this condition implies $\alpha \geq \frac{2 - R_S}{R_G - R_S + 1} \equiv \underline{\alpha}^{DC}$. \square

This equilibrium is achieved due to the temporal inconsistency of bank's decisions. Although ex ante undesirable for the bank since $R_S < 2$, it cannot credibly commit not to bail out bad projects once the initial funding is sunk.⁶ This approach of SBC as a dynamic commitment problem was developed by Shaffer (1989), Dewatripont and Maskin (1995), Qian and Roland (1998), Mitchell (2000) and Kornai, Maskin, and Roland (2003), focusing mainly on the financial sector

⁶ Berglöf and Roland (1997) analyze the coexistence of SBC and credit rationing on new projects, showing that under certain circumstances, the creditor is willing to refinance bad projects rather than funding new ones.

and banking crises. From this standpoint, hardening the budget constraints means creating conditions in which the creditor can credibly commit not to refinance a firm. According to Dewatripont and Maskin (1995), a possible avenue to hardening budget constraints is to put institutions in place that discourage or interfere with refinancing.

It is worth to note that there is no need for political intervention because it is in the interest of the bank itself to soften the financial constraint to bad projects. In fact, the divergence between the objectives of politicians and the expected social welfare is not important in this case.

3.3 Soft budget constraints as an external assistance problem

If $R_L > R_S - 1$, the bank prefers to liquidate bad projects and refinancing would not take place without politicians' intervention. What remains to determine is under which circumstances such an intervention will occur and how it is related to the institutional environment. This section focuses on the issue of softening the financial constraints in the original Kornai's (1986) interpretation. This is not necessarily a problem of credible commitment of the bank but a problem of expecting external assistance with a high probability from the firm standpoint.

Case 1: the interest of politicians is aligned with the maximization of expected social welfare.

There are several cases in which the objectives of politicians are coincident with the maximization of expected social welfare. In some of them, these interests will also converge with those of the bank, although this is not necessarily the case.

Since $R_L > R_S - 1$, the bank will always choose to liquidate a bad project. Hence, there is no loss of generality by classifying the cases according to the preferences of politicians.

Case 1.a. Let consider first the case in which politicians also are better off with liquidation, i.e. $V_L \geq V_S$ (and $W_L \geq W_S$ because the politicians' interest is aligned with the maximization of expected social welfare). In this case, there will not be any pressure from politicians to soften the financial constraints to the firm. Here, the interests of all agents are coincident and liquidation takes place for sure.

The absence of mechanisms to guarantee credible commitments does not play any role and no agent has an incentive to offer external assistance to the firm.

Case 1.b. Consider now the case in which politicians are better off if the bad project is refinanced rather than liquidated, i.e. $V_s > V_L$. In this case, it is socially desirable to soften the firm's financial constraints (i.e., $W_s > W_L$). There are two main points to make about this situation. First, since the bank does not internalize the spillover effects that the financing of a project implies (i.e., E and F) and it does not take the firm's private benefit into account, a socially undesirable credit rationing situation may emerge. In this situation, the bank chooses not to lend in period 1, although the society would be better off with bank lending. This is the case when $W > 0$ and $(\tilde{R} - L) < 0$. Second, if lending occurs in period 1 and it is socially preferable to refinance, politicians might intervene and impose a SBC regime to the bank. The institutional arrangement and the governance structures have to be designed in order to compensate the bank for its expected losses. If such a compensation occurs, softening budget constraints does not have to be seen as a pathology because it is socially desirable.

Case 2: the interest of politicians is not aligned with the maximization of expected social welfare.

When $V_s > V_L$ and $W_s \leq W_L$, the objective of politicians is different from the maximization of expected social welfare. In this case, a socially undesirable soft budget regime could arise. This would be the case when the bank prefers liquidation, which is socially desirable, but politicians have mechanisms to impose the refinance of bad projects to the bank.

Here, the strength of the institutional framework plays a crucial role. Recall that the ability of politicians to impose their agenda (i.e., to impose a SBC regime) is measured by $1 - \sigma$. Hence, from an ex ante point of view, the expected value of social welfare is $E(W) = \alpha W_G + (1 - \alpha)[\sigma W_L + (1 - \sigma)W_s]$. The importance of having strong institutions can be seen by evaluating how the expected social welfare evolves when the quality of the institutional framework changes:

$$\frac{\partial E(W)}{\partial \sigma} = (1 - \alpha)[W_L - W_s] \geq 0$$

. Therefore, if the institutional framework

strengthened ($\sigma \rightarrow 1$), the expected social welfare increases. In this setting in which the objective of politicians differ from the maximization of social welfare, weak institutions would lead to socially undesirable SBC, while strong institutions would lead to socially desirable liquidation of bad projects.

The following proposition characterizes the conditions under which SBC emerge as an external assistance problem.

Proposition 2. (SBC as an external assistance problem.) *If $R_L > R_S - 1$,*

$$V_S > V_L, \quad W_S \leq W_L, \quad \sigma \leq \frac{B_S}{B_S - B_L} \equiv \bar{\sigma} \quad \text{and} \quad \alpha \geq \frac{\sigma(R_S - R_L - 1) - R_S + 2}{\sigma(R_S - R_L - 1) + R_G - R_S + 1} \equiv \underline{\alpha}^{EA},$$

there is an equilibrium in which good and bad projects are submitted, the bank finances all projects in period 1, and politicians imposes refinancing to all bad projects in period 2.

Proof. We proceed by backwards induction. In period 2, a bad project is refinanced only if politicians are able to impose their own agenda, which happens with probability $1 - \sigma$. In period 1, a firm with a bad project submits it only if

$$E(\pi^F) = \sigma B_L + (1 - \sigma) B_S \geq 0, \quad \text{which implies that} \quad \sigma \leq \frac{B_S}{B_S - B_L} \equiv \bar{\sigma}.$$

A firm with a good project always submits it to the bank. The bank funds all projects if

$$E(\pi^B) = \alpha[R_G - 1] + (1 - \alpha)[\sigma(R_L - 1) + (1 - \sigma)(R_S - 2)] \geq 0.$$

This inequality implies

$$\alpha \geq \frac{\sigma(R_S - R_L - 1) - R_S + 2}{\sigma(R_S - R_L - 1) + R_G - R_S + 1} \equiv \underline{\alpha}^{EA}.$$

Although it is socially optimal to liquidate bad projects, politicians would be able to impose a SBC regime when the institutional framework designed to restrain them from pursuing their own interests is weak enough (i.e., $\sigma \leq \bar{\sigma}$). Another interesting result refers to the fact that the firm with a bad project will submit its project only if it expects external assistance with a sufficiently large probability (i.e., $1 - \sigma$ is large enough). In particular, weak institutions promote “bad” firms to submit their projects, while strong institutions prevent it.

Three additional issues are worth to be highlighted. First, the bank is more willing to fund projects when the quality of the institutional environment is high. Note that, ex ante, the bank would require a lower proportion of good projects in the economy to choose to finance all projects if the quality of institutions increases:

$$\frac{\partial \alpha^{EA}}{\partial \sigma} = \frac{(R_S - R_L - 1)(R_G - 1)}{[\sigma(R_S - R_L - 1) + R_G - R_S + 1]^2} < 0$$

Hence, weak institutions affect the bank's behavior because it anticipates that politicians would impose a SBC regime to bad projects with a large probability. Consequently, weak institutions induce credit rationing.

Second, expected bank's losses decrease as institutions strengthened. Expected bank's losses are given by

$$E(-\pi^B) = \alpha(1 - R_G) + (1 - \alpha)[\sigma(R_S - R_L - 1) + 2 - R_S]$$

Since $(R_S - R_L - 1) < 0$, these losses are smaller within a strong institutional environment:

$$\frac{\partial E(-\pi^B)}{\partial \sigma} < 0$$

Therefore, banking failures will be more likely to occur in cases in which institutions are weak. As a corollary, since expected banking losses are larger when institutions are weak, it is reasonable to think that the cost of recomposing the credit system will be also higher in this case.

Third, the cost of having the possibility of softening the bad firm's financial constraints can be expressed as a function of the institutional strength. In order to compute the "expected cost of SBC" from the social standpoint, we have to compare the expected social welfare in the case in which SBC are not feasible,

$$E(W_{NSBC}) = \alpha W_G + (1 - \alpha)W_L$$

$$E(W_{SBC}) = \alpha W_G + (1 - \alpha)[\sigma W_L + (1 - \sigma)W_S]$$

That comparison yields the following expression $E(W_{NSBC}) - E(W_{SBC}) = (1 - \alpha)(1 - \sigma)(W_L - W_S)$. Since

the last term is positive, a weak institutional environment increases the expected

$$\frac{\partial [E(W_{SBC}) - E(W_{NSBC})]}{\partial \sigma} = (-1)(1 - \alpha)(W_L - W_S) < 0$$

cost of SBC:

4. Extensions and discussion

4.1 Soft budget constraints, lobbying and bankruptcy

We extend the basic model in order to analyze how the quality of institutions affects the incentives to perform lobbying activities by the firm, and formalize some implications for the design of bankruptcy procedures. Specifically, we introduce an intermediate stage in which, after realized that the project is bad, the firm decides to allocate some resources, M , in the project (denoted M_f) or in getting access to politicians (denoted M_p). A firm with a bad project could choose whether to make an additional investment in the firm, for instance, to improve management or marketing, or to fund lobbying activities to get politicians operating in softening its budget constraint. In the former case, the firm obtains a benefit B_M . In the latter case, the firm gets B_S when lobbying activities are successful, and B_L when they are not successful. To keep the setting interesting, we assume that $B_M > M$ and $B_M < B_S$. If the former inequality does not hold, the firm would never invest in improving its project, while if the latter inequality does not hold, lobbying would never take place. This two conditions also imply the participation of all types of firms.

In this setting, social welfare, and the objective functions of politicians, the bank and the firm are

$$\begin{aligned} W_2 &= R + B - M + E - F - L \\ V_2 &= R + B - M + qE - pF - L \\ \pi_2^B &= R - L \\ \pi_2^F &= B - M \end{aligned}$$

From now on, we will focus our attention in the relevant case in which the bank prefers to liquidate bad projects, which is socially desirable, and politicians prefer to soften the regime when lobbying occurs. Here politicians intervene only if $M = M_p$. This can be understood by modifying the basic model by setting $q = q(M)$ and $p = p(M)$ such that $q = p = 1$ if $M = M_f$, and $q > 1$ and

$p < 1$ if $M = M_p$. Then, politicians react when an interest group encourages them to intervene.

In this framework, the firm will choose to devote resources to lobbying activities (i.e., $M = M_p$) if $\sigma B_L + (1 - \sigma) B_S \geq B_M$, which yields:

$$\sigma \leq \frac{B_S - B_M}{B_S - B_L} \equiv \bar{\sigma}$$
. Therefore, seeking political intervention to relax financial constraints is profitable when the institutional environment is weak enough. In this case, the firm is willing to devote resources in lobbying instead of applying them in more economically productive activities.

This setting allows us to analyze the implications of the institutional framework on the design of bankruptcy procedures. According to Bebchuck (1988), Hart, La Porta, Lopez de Silanes, and Moore (1997) and Berglöf, Roland, and von Thadden (2010), the design of bankruptcy procedures is a complex task because it should take different and conflicting interests into account. When firms are in financial distress, bankruptcy procedures set up the rules under which debtors and creditors bargain about new contractual conditions and the future of the firm. In alternative attempts to rationalize bankruptcy procedures, Jackson (1982, 1985) and Baird (1986, 1987) suggest that, when firms show symptoms of financial distress, the creditors have an incentive to run and grab the assets, forcing the firm to shut down. Bankruptcy procedures allow creditors to achieve a better outcome acting collectively rather than individually. More recently, bankruptcy literature based on the incomplete contracts approach points out that it is not feasible for creditors to write contracts contingent on total assets and liabilities of a borrower when there are multiple creditors and the debtor may acquire different assets from new ones. Bankruptcy arises to reconcile the inconsistent claims of creditors over the firm assets (see Berglöf, Roland, and von Thadden, 2010; Hart, 1995) and can be interpreted as a procedure that lets creditors monitor the situation of the firm ex post (see Bisin and Rampini, 2006).

Additionally, specific bankruptcy procedures generate ex ante and ex post incentives on debtors and creditors. Povel (1999) notes that bankruptcy procedures could be either “soft” or “tough” on the debtor: soft in order to induce the manager to reveal his financial distress on time, and tough to induce the manager to make efforts and achieve the best outcome. Both mechanisms have drawbacks. With

incomplete information, a tough procedure encourages the manager to hide his financial difficulties in order to avoid punishment, while a soft procedure induces the manager to make lower effort than optimal. The specific design of bankruptcy affects the decision of the borrower about whether or not to get into the procedure and about the timing to do it. On the creditor side, the loan decision is linked to market mechanisms and is managed ex ante regarding the ex post probability of recovering funds if the firm goes bankrupt.

The specific design of bankruptcy procedures has an impact not only on the lending relationship but also on the incentives of the debtor to seek its budget constraint softened. The coexistence of a tough bankruptcy procedure and poor institutions could have serious effects on the politization of the lending relationship. Hart (2000) also stresses that the specific procedure that a country should choose may depend on factors such as the country's institutional structure and legal tradition.⁷

In terms of our model, we can interpret B_M as the firm's benefit after emerging from the bankruptcy procedure. B_L can be thought as the firm's benefit after liquidation. The latter outcome implies a higher cost than in the previous case because liquidation usually involves a serious loss of reputation and additional difficulties to have access to the credit system in the future. Thus, it is reasonable to set $B_M = B_L + r$, with $r > 0$. A small r implies a hard bankruptcy regime, while a large r implies a soft one.

The firm will choose to lobby if: $\sigma B_L + (1 - \sigma) B_S \geq B_L + r$, which yields $r \leq (1 - \sigma)(B_S - B_L) \equiv \bar{r}$. This condition defines a maximum value for r , which

decreases with the institutional strength: $\frac{\partial \bar{r}}{\partial \sigma} = B_L - B_S < 0$. Therefore, a hard bankruptcy regime encourages the firm to seek external assistance, promoting lobbying activities to get into a soft budget regime. Strong institutions reduces \bar{r} . Hence, tougher regimes are "allowed" without promoting lobbying. If the

⁷ Recent empirical research supports the existence of a relationship among bankruptcy procedures, institutions and SBC. Claessens and Klapper (2005) find that the importance of bankruptcy is higher in common law countries, with market oriented financial systems and efficient judiciary.

institutional framework is weak, a hard bankruptcy regime (probably reasonable in term of the rules of the game) might be not socially beneficial once the play of the game is observed. The net result of a regime featured by tough bankruptcy procedures, weak institutions and SBC might be that the borrower is encouraged to loot the firm and let society pay the bill (see Akerlof and Romer, 1993).

4.2 Who pays for the soft budget constraints?

In order to discuss the effects of softening the budget constraints upon different agents, we extend the basic model by introducing two types of borrowers: (i) the *firm* type, which represents those borrowers that may be able to get their financial constraints relaxed through political lobbying activities; and (ii) the *consumer* type, which represents those borrowers without such ability. The benefit of the latter type of borrowers comes from consumption: when a consumer consumes one unit, its benefit is B^C . We further simplify the model by assuming that the expected value of the returns from loans to the firm and to the consumer are R^F and R^C respectively.

In this extended setting, social welfare, the objective function of politicians, the benefits of the bank, the firm and consumers are given by

$$\begin{aligned} W_1 &= R^F + R^C + B^F + B^C + E - F - L \\ V_1 &= R^F + R^C + B^F + B^C + qE - pF - L \\ \pi_1^B &= R^F + R^C - L \\ \pi_1^F &= B^F \\ \pi_1^C &= B^C - R^C \end{aligned}$$

We assume that the bank has all the bargaining power vis vis the consumer. Hence, the bank sets $R^C = B^C$. By lending to the consumer, the bank always increases its profit by an amount equal to $B^C - 1$. Hence, if the expected net profit of softening the financial constraint to the firm is negative, the consumer may cross-subsidize the activities of the firm. If the losses derived from the lending activities to the firm are lower than $B^C - 1$, the consumer is the only one that subsidizes the SBC process. This happens because the consumer, differently from the firm, does not have the ability to get its budget constraint softened through

political channels. Since the activities of the firm and its relationships with politicians are relatively opaque, the process becomes a “taxation through interest rates” mechanism, which benefits the firm and politicians.⁸

In the case in which the losses derived from softening the firm’s budget constraint are lower than the subsidy coming from the consumer, the negative effect of a bank failure disappears, i.e. $F=0$. However, in the complementary case in which the losses derived from the lending activities to the firm are larger than $B^C - 1$, the bank makes global losses; hence, $F > 0$. The gains from lending to the consumer are not enough to compensate the losses from softening the bad firm’s financial constraints. Hence, funding from other sources is needed in order to avoid financial distress. Here, the burden of softening the financial regime should be covered by combining financing through interest rates and financing through the tax-subsidy system. Due to institutional reasons, politicians have an incentive to maximize the former, since the latter has to be done in a more transparent and explicit manner (which may entail political costs). According to Williamson (1996), the former can be viewed as a “hierarchical” procedure, while the latter constitutes a “market-like” mechanism for redistribution. Again, weak institutions facilitate this redistribution process and promote lobbying activities to get financial constraint softened.⁹

4.3 Private versus state-owned banks

According to the previous discussion, the relative merits of State-owned and private banks should be analyzed taking into consideration the main features of the institutional framework. State-owned banks have a set of institutional and organizational specific characteristics that distinguish them from privately-owned financial entities. The nature of ownership does not necessarily determine the efficiency of organizations as long as political and judicial institutions are

⁸ It should be noted that in a model with several firms, another “taxation through interest rates” mechanism may work when firms with good projects are cross-subsidizing those with bad projects but that are successful in their lobbying activities.

⁹ One legitimate question arises: why are politicians, which are concerned about staying in office, willing to “disregard” the negative effect of the cross-subsidization process? Put differently, politicians should be concerned about the consumer’s welfare since they are seeking for its vote. However, our framework is consistent with the literature on interest groups, lobbying and buying legislatures (see, for example, Denzau and Munger, 1986; Snyder, 1991). Denzau and Munger (1986) assume that interest groups offer campaign contributions in exchange for legislators’ efforts on their behalf, while voters are largely uninformed and resources devoted to advertising affect their responses. In this setting, it is reasonable to think that politicians operate in the SBC process, assuming that the contributions they get from the firm will fund advertising activities to influence relatively uninformed voters. Additionally, it is generally not easy for voters to observe whether or not politicians are softening budget constraints.

sufficiently strong and transaction costs are negligible. If this is the case, the crucial aspect refers to the ability to design and enforce the proper rules of the game. However, when the institutional framework is not as strong and transaction costs become relevant, State-owned and privately-owned banks should be viewed as alternative, discrete governance structures. Basically, the mechanisms through which the rules of the game are designed, imposed and enforced are structurally different depending on the ownership of entities.¹⁰

State-owned banks can become a relevant instrument to soften financial constraints, particularly in a weak institutional environment. It is institutionally different to force a bank to refinance when the entity is private-owned than when it is State-owned. From the political standpoint, it is more costly passing a law or establishing specific regulations than using administrative procedures to soften financial constraints. The institutional instruments differ in a discrete way: the formers constitute a “market-like” mechanism, while the latter makes use of “hierarchical” procedures. Additionally, in order to have a private bank refinancing a bad project, it should be compensated through the tax-subsidy system. However, a State-owned bank can be instructed to behave in accordance with politicians’ preferences.

5. Final remarks

The main findings of our analysis are essentially consistent with most of the empirical literature related to: the role of institutions on the likelihood and costs of financial crises, and consequently, on the development of the financial systems and economic growth; the effects of institutions and SBC on investment; and the effects of state ownership of banks on investment and financial crises.

First, our model suggests that the quality of institutions affects the probability and the costs of financial crises. In particular, weak legal, political and social institutions, and the emergence of SBC, increase the likelihood of banking crises and the social cost of recovering the financial system. Under these circumstances, there should be a larger amount of bad quality loans granted by banks, more lobbying activities and unnecessary delays in taking corrective measures in the financial area. Demirgüç-Kunt and Detragiache (1998a) find that the probability of a banking crisis increases in cases in which the macroeconomic environment is weak and the legal system allows fraud and violation of contractual covenants to go

¹⁰ These differences imply different outcomes. For example, Wang and Lin (2010) show consistent empirical evidence that the rules of governance have a significant impact on bankruptcy risk.

largely unpunished. They also determine the factors affecting the cost of banking crises. In particular, they find that an effective legal system is likely to reduce both the occurrence and the losses derived from a systemic banking failure. Additionally, Demirgüç-Kunt and Detragiache (1998b) point out that financial liberalization increases the probability of a banking crisis, but they find that this effect is lower when the institutional environment is strong (i.e., the respect for the rule and law is strong), the level of corruption is low, and the contract enforcement is reasonable. Caprio and Klingebiel (1996) explain that low quality institutions (i.e., lax banking regulation, politically motivated loans and poor legal framework) can be an important cause of banking crises and of having large resolution costs. A similar conclusion is achieved by Honohan and Klingebiel (2000), who find that the costs of financial crises resolution increase significantly in the presence of unlimited deposit guarantees, open-ended liquidity support, repeated recapitalizations, debtor bail-outs and regulatory forbearance. Finally, Keefer (2001) analyzes the effect of checks and balances on the government's incentive to authorize special benefits for narrow interest groups at the expense of voters at large. He finds evidence that supports the hypothesis that the larger the number of veto players, the smaller the fiscal transfers to the financial sector (i.e., the smaller the cost of the crises) and the lower the likelihood of exercising forbearance in dealing with insolvent financial institutions. As a corollary, the quality of the institutional framework plays an important role in explaining the development of the financial system. Weak institutions prevent creditors to lend, since they anticipate the possibility of getting losses due to political interference. There is a substantial body of work which suggests that there is a strong positive link between the functioning and development of the financial system and long-run economic growth (Levine, 1997, 2002). Additionally, La Porta, Lopez de Silanes, Shleifer, and Vishny (1998) point out that different legal traditions protect the rights of investors to varying degrees. Countries with a French legal tradition tend to have weaker financial institutions, lower stock markets and bank development, poor property rights protection and less transparent corporate financial statements (see Beck, Demirgüç-Kunt, and Levine, 2003). Finally, Levine (2002) finds that the efficiency of the legal system in enforcing property rights is strongly linked to long-run growth. Also Acemoglu, Johnson, and Robinson (2005) and Acemoglu and Johnson (2005) stress the importance of institutions that protect property rights for economic growth.

Second, our findings are consistent with the view that weak institutional environments encourage individuals to reallocate resources from economic to political activities, leading to lower and less economically productive investment.

The empirical literature suggests a strong relationship between the quality of political and legal institutions and the amount and nature of investment. Beck and Levine (2002) find that industries that are heavy users of external finance grow faster in countries with higher financial development and efficient legal systems. Effective contract enforcement attracts a larger amount of capital and boosts the efficiency of capital allocation. The positive impact of political institutions on foreign investment and on investment in utilities industries is also empirically confirmed (Levy and Spiller, 1995; Henisz, 1997; Bergara, Henisz, and Spiller, 1998; Henisz and Zelner, 2001; Zelner, 1998; Savedoff and Spiller, 1999). Well-defined and credible political institutions, as well as judicial independence, are key factors in explaining the amount and features of investment in electricity generating capacity, infrastructure in telecommunication, and so on.

Third, our setting emphasizes that State-owned banks could become a relevant mechanism to implement a SBC regime when the institutional environment is weak. Thus, we expected that a large share of State-owned banks increases the likelihood and the resolution costs of banking crises, reduces the quality of investments, and reduces long-run economic growth. By analyzing the main aspects of financial regulation and supervision, Barth, Caprio, and Levine (2004) find that the government ownership of banks is negatively correlated with good economic outcomes and positively linked with corruption. Additionally, La Porta, Lopez de Silanes, and Shleifer (2002) conclude that the empirical evidence is consistent with the “political” view of government ownership of financial entities, according to which the resource allocation process is guided by political interest. Moreover, they find that the ownership of banks by the government is larger in countries with lower levels of income per capita, underdeveloped financial systems, interventionist and inefficient governments, and poor protection of property rights. They also point out that such ownership is correlated with slower subsequent financial development, and slower growth of income per capita and productivity. Moreover, a negative association is stronger in the least developed countries. Barth, Caprio, and Levine (2001) achieve similar conclusions: a greater participation of State-owned banks is generally associated with less efficient banking systems and less developed stock markets. Finally, Caprio and Martinez (2002) analyze the impact of government ownership of bank on financial stability. They find that the former increases the likelihood of financial crisis.

References

- ACEMOGLU, D., AND S. JOHNSON (2005): “Unbundling Institutions,” *Journal of Political Economy*, 113(5), 949–995.
- ACEMOGLU, D., S. JOHNSON, AND J. A. ROBINSON (2005): “Institutions as a Fundamental Cause of Long-Run Growth,” in *Handbook of Economic Growth*, ed. by P. Aghion, and S. Durlauf, vol. 1, chap. 6, pp. 385–472. Elsevier.
- AKERLOF, G., AND P. ROMER (1993): “Looting: the Economic Underworld of Bankruptcy for Profit,” *Brookings Papers on Economic Activity*, 2, 1–60.
- BAI, C.-E., AND Y. WANG (1998): “Bureaucratic Control and the Soft Budget Constraint,” *Journal of Comparative Economics*, 26, 41–61.
- BAIRD, D. G. (1986): “The Unease Case for Corporate Reorganization,” *Journal of Legal Studies*, 15, 127–147.
- _____ (1987): “A World Without Bankruptcy,” *Law and Contemporary Problems*, 50(2), 171–182.
- BARTH, J., G. CAPRIO, AND R. LEVINE (2001): “Banking Systems Around the Globe: do Regulation and Ownership Affect Performance and Stability?,” in *Prudential Supervision: What Works and What Doesn't*, pp. 31–96. NBER.
- _____ (2004): “Bank regulation and supervision: what works best?,” *Journal of Financial Intermediation*, 13(2), 205–248.
- BEBCHUCK, L. A. (1988): “A New Approach to Corporate Reorganizations,” *Harvard Law Review*, 101, 775–804.
- BECK, T., A. DEMIRGÜC-KUNT, AND R. LEVINE (2003): “Law and Finance: Why Does Legal Origin Matter?,” *Journal of Comparative Economics*, 31(4), 653–675.
- BECK, T., AND R. LEVINE (2002): “Industry Growth and Capital Allocation: Does Having a Market- or Bank-Based System Matter?,” *Journal of Financial Economics*, 64(2), 147–180.
- BERGARA, M., W. HENISZ, AND P. SPILLER (1998): “Political Institutions and Electric Utility Investment: a Cross-Nation Analysis,” *California Management Review*, 40(2), 18–35.

- BERGLÖF, E., AND G. ROLAND (1997): “Soft Budget Constraints and Credit Crunches in Financial Transition,” *European Economic Review*, 41, 807–817.
- _____ (1998): “Soft Budget Constraints and Banking in Transition Economies,” *Journal of Comparative Economics*, 26, 18–40.
- BERGLÖF, E., G. ROLAND, AND E. VON THADDEN (2010): “The Design of Corporate Debt Structure and Bankruptcy,” *Review of Financial Studies*, 23(7), 2648-2679.
- BISIN, A., AND A. A. RAMPINI (2006): “Exclusive Contracts and the Institution of Bankruptcy,” *Economic Theory*, 27, 277–304.
- CAPRIO, G. J., AND D. KLINGEBIEL (1996): “Bank Insolvencies: Cross-Country Experience,” Policy Research Working Paper 1620, World Bank.
- CAPRIO, G. J., AND S. MARTINEZ (2002): “Avoiding Disaster: Policies to Reduce the Risk of Banking Crises,” in *Monetary Policy And Exchange Rate Regimes: Options for the Middle East*, ed. by E. Cardoso, and A. Galal. ECES.
- CLAESSENS, S., AND L. KLAPPER (2005): “Bankruptcy Around the World: Explanations of its Relative Use,” *American Law and Economics Review*, 7(1), 253–283.
- DEMIRGÜC-KUNT, A., AND E. DETRAGIACHE (1998a): “The Determinants of Banking Crises: Evidence from Developing and Developed Countries,” *IMF Staff Papers*, 45(1).
- _____ (1998b): “Financial Liberalization and Financial Fragility,” Working Paper WP/98/83, International Monetary Fund.
- DENZAU, A. T., AND M. C. MUNGER (1986): “Legislators and Interest Groups: How Unorganized Interests Get Represented,” *American Political Science Review*, 80(1), 89–106.
- DESAI, R. M., AND A. OLOFSGÅRD (2006): “The political advantage of soft budget constraints,” *European Journal of Political Economy*, 22, 370–387.
- DEWATRIPONT, M., AND E. MASKIN (1995): “Credit and Efficiency in Centralized and Decentralized Economies,” *Review of Economic Studies*, 62, 541–555.

- DEWATRIPONT, M., AND G. ROLAND (2000): "Soft Budget Constraints, Transition and Financial Systems," *Journal of Institutional and Theoretical Economics*, 156(1), 245–260.
- GOLDFELD, S., AND R. QUANDT (1988): "Budget Constraints, Bailouts, and the Firm Under Central Planning," *Journal of Comparative Economics*, 12, 502–520.
- HART, O. (1995): *Firms, Contracts and Financial Structure*, Clarendon Lectures in Economics. Oxford University Press.
- _____ (2000): "Different Approaches to Bankruptcy," Working Paper 7921, NBER.
- HART, O., R. LA PORTA, F. LOPEZ DE SILANES, AND J. MOORE (1997): "A New Bankruptcy Procedure that Uses Multiples Auctions," *European Economic Review*, 41, 461–473.
- HENISZ, W. (1997): "The Institutional Environment for International Investment," Working paper, UC Berkeley.
- HENISZ, W. J., AND B. A. ZELNER (2001): "The Institutional Environment for Telecommunications Investment," *Journal of Economics & Management Strategy*, 10(1), 123–147.
- HIBBS, D., AND N. VASILATOS (1982): "Economic Outcomes and Political Support for British Governments among Occupational Classes: A Dynamic Analysis," *The American Political Science Review*, 76(2), 259–279.
- HONOHAN, P., AND D. KLINGEBIEL (2000): "Controlling Fiscal Costs of Banking Crisis," *World Bank Policy Research Working Paper Series 2441*.
- HUANG, H., AND C. XU (1998): "Soft Budget Constraint and the Optimal Choices of Research and Development Projects Financing," *Journal of Comparative Economics*, 26, 62–79.
- _____ (1999): "Institutions, Innovations, and Growth," *American Economic Review Papers and Proceedings*, 89(2), 438–443.
- JACKSON, T. H. (1982): "Bankruptcy, Nonbankruptcy Entitlements, and the Creditor Bargain," *The Yale Law Review*, 91, 857–870.

- _____ (1985): “Translating Assets and Liabilities to the Bankruptcy Forum,” *Journal of Legal Studies*, 14, 73–114.
- KEEFER, P. (2001): “Banking Crises and the Effect of Political Checks and Balances on Special Interest Influence,” Working paper, World Bank.
- KORNAI, J. (1986): “The Soft Budget Constraint,” *Kyklos*, 39(1), 3–30.
- _____ (1992): *The Socialist System: The Political Economy of Communism*. Princeton University Press.
- _____ (1998): “Legal Obligation, Non-Compliance and Soft Budget Constraint,” in *The New Palgrave Dictionary of Law and Economics*, pp. 533–539.
- KORNAI, J., E. MASKIN, AND G. ROLAND (2003): “Understanding the Soft Budget Constraint,” *Journal of Economic Literature*, 41(4), 1095–1136.
- LA PORTA, R., F. LOPEZ DE SILANES, AND A. SHLEIFER (2002): “Government Ownership of Banks,” *Journal of Finance*, 57(1), 265–301.
- LA PORTA, R., F. LOPEZ DE SILANES, A. SHLEIFER, AND R. VISHNY (1998): “Law and Finance,” *Journal of Political Economy*, 106(6), 1113–1155.
- LAEVEN, L., AND F. VALENCIA (2008): “Systemic banking crises: A new database,” *IMF working paper*.
- LEVINE, R. (1997): “Financial Development and Economics Growth: Views and Agenda,” *Journal of Economic Literature*, 35, 688–726.
- _____ (2002): “Bank-Based or Market-Based Financial Systems: Which is Better?,” *Journal of Financial Intermediation*, 11(4), 398–428.
- LEVY, B., AND P. SPILLER (1995): *The Institutional Foundations of Regulatory Commitment*. Cambridge University Press.
- MITCHELL, J. (2000): “Theories of Soft Budget Constraints and the Analysis of Banking Crises,” *The Economics of Transition*, 8(1), 59–100.
- NORTH, D. (1990): *Institutions, Institutional Change and Economic Performance*. Cambridge University Press.

- _____ (1994): “Economic Performance Through Time,” *American Economic Review*, 84(3), 359–368.
- POVEL, P. (1999): “Optimal ‘Soft’ or ‘Tough’ Bankruptcy Procedures,” *Journal of Law, Economics and Organization*, 15(3), 659–684.
- _____ (2004): “Multiple Banking as a Commitment not to Rescue,” *Research in Finance*, 21, 175–199.
- PUN, W.-C. (1995): “The Kornai Effect and Soft Budget Constraints,” *Journal of Comparative Economics*, 21, 326–335.
- QIAN, Y., AND G. ROLAND (1998): “Federalism and the Soft Budget Constraint,” *American Economic Review*, 88(5), 1143–1162.
- RIZOV, M. (2002): “Budget Constraints and Profitability: Evidence From a Transition Economy,” *LICOS Discussion Papers 11602*.
- ROBINSON, J. A., AND R. TORVIK (2009): “A political economy theory of the soft budget constraint,” *European Economic Review*, 53, 786–798.
- ROEMER, J. (1996): *Egalitarian Perspectives: Essays in Philosophical Economics*. Cambridge University Press.
- ROLAND, G. (2000): *Transition and Economics: Politics, Markets, and Firms*. The MIT Press.
- SAVEDOFF, W., AND P. SPILLER (1999): *Spilled Water: Institutional Commitment in the Provision of Water Services*. Inter-American Development Bank.
- SHAFFER, M. (1989): “The Credible-Commitment Problem in the Center-Enterprise Relationship,” *Journal of Comparative Economics*, 13, 359–382.
- _____ (1998): “Do Firms in Transition Economies Have Soft Budget Constraints? A Reconsideration of Concepts and Evidence,” *Journal of Comparative Economics*, 26, 80–103.
- SNYDER, J. M. J. (1991): “On Buying Legislatures,” *Economics and Politics*, 3(2), 93–109.
- WANG, C-J., AND LIN, J-R (2010): “Corporate Governance and Risk of Default” *International Review of Accounting, Banking and Finance*, 2(3), 1–27.

WILLIAMSON, O. (1996): *The Mechanisms of Governance*. Oxford University Press.

ZELNER, B. (1998): “Political Institutions, Political Competition and Procurement Strategy in the US Electric Utility Industry,” Working paper, UC Berkeley.

Acknowledgement: The authors would like to thank Eric Maskin, Jnos Kornai and Jnos Varga for their valuable comments on an earlier draft of the paper. The views expressed herein are those of the authors and do not necessarily represent the views of the institutions to which they are affiliated.
