



# **Which Firms Have a Soft Loan ? Managers' Beliefs in a Cross-Country Survey in Transition Economies**

C. BIGNEBAT, F. GOURET



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# Which Firms Have a Soft Loan? Managers' Beliefs in a Cross-Country Survey in Transition Economies<sup>1</sup>

Céline Bignebat

INRA, Institut National de la Recherche Agronomique ;  
UMR MOISA, Marchés Organisation Institutions et Stratégies d'Acteurs ;  
Montpellier, France  
[bignebat@ensam.inra.fr](mailto:bignebat@ensam.inra.fr)

Fabian Gouret

Centre d'Economie de la Sorbonne, UMR8174, ROSES ;  
Université Paris 1 Panthéon-Sorbonne, Maison des Sciences Economiques ;  
Paris, FRANCE,  
[Fabian.Gouret@malix.univ-paris1.fr](mailto:Fabian.Gouret@malix.univ-paris1.fr)

## Abstract

This paper is an empirical work grounded in the soft budget constraint literature. A loan is soft when a bank cannot commit to hold an enterprise to a fixed initial budget and/or the timing of repayment. Using data collected by the EBRD (BEEPS 2002) in 26 transition economies, we analyze the determinants of managers' expectations to have a soft loan. We show that managers' beliefs integrate some of the decision criteria of the banks: managers' expectations to have soft loans are lower when the initial financing requires collateral, higher for big firms and higher when firms had recently experienced financial distress.

**Keywords:** Soft budget constraint, Eastern Europe.

Quelles firmes ont un prêt lâche? Les croyances des managers dans les économies en transition

## Résumé

Ce papier empirique s'inscrit dans la littérature sur la contrainte budgétaire lâche. Un prêt est lâche quand la banque ne peut pas s'engager, de manière crédible, à maintenir le prêt à un certain montant et/ou à certaines échéances. A l'aide de données collectées par la BERD (BEEPS 2002) dans 26 pays en transition, on analyse les croyances des managers d'obtenir un prêt lâche. Les managers intègrent dans leurs croyances les critères de décision des banques. Les anticipations d'avoir un prêt lâche sont plus faibles quand le financement engage un collatéral. Les grandes firmes et les firmes qui ont connu des difficultés financières ont, elles, des anticipations plus élevées.

**Mots Clefs :** Contrainte budgétaire lâche, Europe de l'Est.

**JEL classification:** D84, G3, O12, P21

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# 1 Introduction

The term “soft budget constraint” (SBC<sup>1</sup>) was first introduced by Kornai (1979) to illuminate economic behavior in socialist economies. It is now widely used to describe similar phenomena in post-socialist, developed and developing countries<sup>2</sup>. The concept alludes to a situation in which a loss-making firm is bailed out (by a government, a bank or an other institution). Furthermore, the expectation of the decision-maker as to whether the firm will be bailed out in case of trouble is at the heart of the syndrome because this expectation affects his behavior (Kornai, 1979; 1998a). The SBC syndrome is acknowledged to be an obstacle to the restructuring of loss-making firms, the efficient use of inputs and macroeconomic stability (Dewatripont and Roland, 2000). However, despite considerable progress in the last decade to give theoretical explanations to the SBC syndrome<sup>3</sup>, empirical research on the determinants of SBC is still in its infancy (Djankov and Murrell, 2002; Kornai *et al.*, 2003). It is due to the fact that the notion of softness is difficult to operationalize. In line with the works of Kornai, an empirical measure has to capture the expectations of managers to be bailed out in case of trouble. Thus, SBC theorists argue that e.g. subsidization of loss-making firms is not identical to SBC.<sup>4</sup> Furthermore, SBC theorists often argue that empirical works are not closely grounded in theory (Kornai *et al.*, 2003).

This empirical paper follows the line of research initiated by Dewatripont and Maskin (1995) by considering that the SBC syndrome occurs when a funding source (in our case banks) cannot commit to keep an enterprise to a fixed initial budget and/or to maintain the timing of repayment specified by the contract. Indeed,

despite the fact that the bank understands *ex post* that the firm should not have been financed initially, it might be optimal to refinance it because an initial injection is sunk. If it is the case, we say that the firm has a *soft loan*. We use a data set of nearly 4500 loan applicants in 26 transition economies in which there is a selection process from the banks among applicants. Firms which obtain a loan might expect that if they fall behind in the repayment of their loan, the bank will extend the term of the loan or will be ready to wait without beginning legal proceedings to take possession of the collateral; this occurs because an initial injection of funds is sunk. We analyze the determinants of the managers' expectations to have a soft loan: we use a censored bivariate probit, because some projects were not financed by the banks. The selection equation, i.e. to be granted a loan or not, is important because it determines the capacity of the banks to apply accurate credit assessment. Adequate lending criteria for the selection of projects allow the banks to decrease the SBC syndrome.

Consequently, our paper contributes to the progress of the SBC literature in at least two ways. First, our empirical work is linked to the line of research initiated by Dewatripont and Maskin (1995) which see the SBC as a commitment problem. Furthermore, the framework allows to test other motives proposed by the literature, like political motives of keeping workers employed. Second, our paper clearly follows the idea that the SBC is related to decision-makers' expectations. Until now, only Anderson *et al.* (2000) elicit directly managers' expectations. They focus on the expectations of managers concerning state aid in case of financial difficulties by investigating a data set of 200 Mongolian firms. They examine various causes of soft budgets in addition to state ownership but they do not consider the commitment

problem as such.<sup>5</sup>

However, our paper has also two caveats. First, we focus on loan as a mean of softening. Nevertheless, loans are not the unique mean of softening the BC. There are various means of rescue (fiscal means like subsidies or tax concessions, credit means like loans or trade credit), and when one mean of softening is restricted, like loans, another may come to the fore, e.g. tax concessions. Consequently and following this example, observing only loans or managers' expectations to have soft loans can generate misleading conclusions if the major mean of softening is based on subsidies. However, various authors (e.g., Berglof and Roland, 1998; Dewatripont and Roland, 2000) note that governments have drastically reduced subsidies to firms in transition economies and loss-making firms are mostly bailed out via bank loans. Furthermore, various empirical works have shown that the banking sector does not seem to apply accurate credit assessment in transition economies. Banks tended to give preferences to distressed firms to allocate credit during the nineties<sup>6</sup>. Second, if our paper clearly follows the idea that SBC is related to the firm decision-makers' expectations, the legitimacy to take expectations rather than facts into account might be questioned. Thus, our study has the same disadvantage than Anderson *et al.* (2000). However, given the paucity of empirical works on SBC, our analysis might offer significant new insights. Furthermore, we highlight that the SBC syndrome is related to managers' expectations which, in turn, are formed upon the basis of their own experience and that of other firms in the economy (Kornai, 1979; Kornai *et al.*, 2003).

The remainder of the paper is structured as follows. Section 2 describes our framework. It permits to highlight the determinants of the SBC that we will test. Section 3 presents our econometric methodology. Section 4 presents the data and

results. Finally section 5 concludes.

## 2 To Have a Soft Loan or Not?

This section borrows from Kornai *et al.* (2003) and Boyes *et al.* (1989) and presents the main aspects of our framework.

Assume that a firm submits a project to a bank in period  $t$ . The bank can decide to grant a loan of an amount  $l_1$  or to denied it. If funded, the project can yield a gross monetary return of  $R_g > l_1$  within the period  $t$ . It can also be defaulted. In such a case the bank has two possibilities:

- it could begin legal proceedings to take possession of the collateral of a value  $Col$ .
- alternatively, the bank could refinance the project by injecting an additional capital of  $l_2$ , extend the term of the loan or do nothing and wait to obtain an expected gross return of  $R_p$  in  $t + 1$ . In such a case, the loan is said to be *soft*.

If the project is defaulted, the firm manager will have a soft loan if:

$$R_p - l_2 > Col \tag{1}$$

When condition 1 is satisfied, the loan is soft because the bank prefers to refinance the project by injecting the additional capital, or to extend the term of the loan, or to do nothing and wait. Thus, for a firm which has obtained a loan in  $t$ , the lower the collateral, the higher the probability of having a soft loan. Our data set allows to test the following implication (see section 4 for a presentation of the data):

**Testable Implication 1** *For a firm which has obtained a loan, manager's expectation to have a soft loan is lower when the initial financing requires collateral.*

However, note that the firm has a soft loan if and only if the bank has not been able to select good applicants in the first step. The loan can be repaid or defaulted (in such a situation the loan is soft or not). Then, each loan yields two possible outcomes that can be described by a Bernoulli trial:

$$\pi = \begin{cases} R_g - l_1 & \text{with probability } p \\ \max\{R_p - l_2; Col\} - l_1 & \text{with probability } (1 - p) \end{cases} \quad (2)$$

Following the literature on credit scoring (Boyes *et al.*, 1989), the bank establishes a credit approval for each firm applicant if it knows all the parameters of this trial. Hence, a loan is granted only to those firms with probabilities of success  $p$  such that:

$$p > \frac{l_1 - \max\{R_p - l_2; Col\}}{R_g - \max\{R_p - l_2; Col\}} \equiv \bar{p} \quad (3)$$

The firm has a soft loan if  $p > \bar{p}$  and  $R_p - l_2 > Col$ . One can see that the SBC is, in statistical inference terminology, a type II error: the bank fails to reject the initial funding of poor projects. Hence, the capacity of the bank to apply accurate credit assessment in the first step is crucial because it can reduce the SBC problem.

The framework developed above can be extended to include different possible causes of the SBC syndrome identified by the theoretical literature. First, the bank's ownership structure might matter. If a private bank is presumably in the business of maximizing profit, it is not the case of a state-owned bank. The latter maximizes social welfare or political benefit of keeping firm workers employed. Assume that

the bank is state-owned and denote  $E$  the external effect of a project ( $E > 0$ ). A state-owned bank will refinance a project if  $R_p + E - l_2 > Col$ . This condition is less demanding than  $R_p - l_2 > Col$ ; thus we obtain the second testable implication:

**Testable Implication 2** *A manager who has obtained a loan from a state-owned bank has a higher expectation to have a soft loan than a manager who has obtained a loan from a private bank.*

However, the following remark is necessary. The game sketched above is composed of two players: a firm manager and a bank. Now, let's assume that there is a third player, the government, and that the bank is private. In such a case, if the firm is a political capital for the government (the firm is state-owned, too big to fail, or a monopoly<sup>7</sup>), even a private bank might extend the term of the loan to the firm or wait and do nothing because the private bank expects the government will be the ultimate guarantor of the firm in case of trouble.

**Testable Implication 3** *A firm which is a political capital for the government has a higher probability to have a soft loan, even if granted by a private bank, than a firm which is not a political capital and vice versa. Furthermore, a firm which is a political capital is more able to obtain a loan than a firm which is not because the bank might expect that the firm which is a political capital has a ultimate guarantor, i.e. the government, in case of trouble.*



### 3 Econometric Methodology

#### 3.1 A bivariate qualitative dependent variable model with censoring

Given the model sketched above and the data at our disposal (that we will describe in the next section), expectations to have a soft loan are censored since banks do not grant a loan to all the applicants because of a selection process. Consequently the bivariate probit with censoring is the natural tool for our estimations. This econometric model was first explored by Van de Ven and Van Praag (1981).<sup>8</sup>

Suppose that  $Y_i^*$  is a continuous latent variable reflecting the degree of softness of the budget constraint of enterprise  $i$ . Thus, we have:

$$Y_i^* = X1_i\beta + \epsilon_{1i} \quad (4)$$

with  $X1_i$  a vector of observed observations, including the variables considered as potential determinants of managers' expectations: the collateral, the degree of market power, the size and the ownership of the firm. We will call this equation the *Soft* equation. We consider the binary response of enterprise  $i$  about the expectation to have a soft loan or not:

$$Soft_i = 1 \quad \text{if} \quad Y_i^* > 0 \quad (5)$$

$$Soft_i = 0 \quad \text{if} \quad Y_i^* \leq 0 \quad (6)$$

The dependent variable, however, is censored since only firm applicants that

received a credit are observed. To put this in a familiar context, the selection equation is:

$$Loan_i = (Z_i\gamma + \epsilon_{2i} > 0) \quad (7)$$

with  $Loan_i = 1$  if the firm  $i$  obtains a loan, 0 otherwise.  $Z_i$  includes traditional variables of credit scoring models: the firm's and manager's characteristics. Finally, note that  $Var(\epsilon_{1i}) = Var(\epsilon_{2i}) = 1$  (this assumption is the standard normalization for probit selection equation) and  $Cov(\epsilon_{1i}, \epsilon_{2i}) = \rho$ . The selection equation, called the *Loan* equation, is fundamental since the capacity of the banking system to apply accurate lending criteria is crucial. If  $Loan = 1$  and  $Soft = 1$ , the manager obtains a soft loan. Thus the probability that a manager obtains a soft loan is the bivariate probability  $Prob(Soft = 1, Loan = 1)$ .

The likelihood function is:

$$L = \prod_{\substack{i \in S \\ Soft_i=1}} \Phi_2(X1_i\beta, Z_i\gamma; \rho) \prod_{\substack{i \in S \\ Soft_i=0}} \Phi_2(-X1_i\beta, Z_i\gamma; -\rho) \prod_{i \notin S} \Phi(-Z_i\gamma) \quad (8)$$

where  $S$  is the set of observations for which  $Soft_i$  is observed.  $\Phi$  and  $\Phi_2$  are the standard cumulative normal and the cumulative bivariate normal distribution function, respectively.

## 4 Estimation Results

### 4.1 Data and Model Specification

The data used in this paper are drawn from the Business Environment and Enterprise Performance Survey (BEEPS), developed jointly by the World Bank (WB)

and the European Bank for Reconstruction and Development (EBRD). It is a survey of 6367 firms in 26 transition economies<sup>9</sup>, as well as in Turkey, conducted in the first half of 2002. It was collected on the basis of face-to-face interviews with owners, managers or finance officers through site visits by surveyors trained according to a standardized methodology. The sample was structured to be representative of each countries with specific quotas placed on size, sector, ownership and export orientation (MEMRB, 2002; Hellman and Kaufman, 2002). We have restricted our sample to firms in transition economies, i.e. we drop firms located in Turkey (511 observations).

***-Insert table 1-***

The BEEPS data set includes some particularly interesting questions dealing with SBC. Table 1 provides the descriptive statistics of the main variables of interest. It especially provides the two following crucial informations:

- If the firm has obtained a loan recently or not (the *Loan* variable).
- And if the firm has obtained a loan, does the firm expect to have a soft loan (the *Soft* variable).

Concerning the *Loan* variable, we do not know directly from the data set if the firms which do not have a loan ask for it or not. Like in traditional credit scoring models (Boyes *et al.*, 1989; Greene, 1992), we consider only firms which are loan applicants. However, we know from the survey if the firm faces major obstacles to get a financing from banks. Consequently, we drop of the survey all the firms without loans which consider not to have major difficulties to be granted a loan

(1225 firms, Turkish firms excluded). Thus, we consider that the applicants are the firms which are granted a loan (2368) and those firms which do not have a loan and whom access to financing from banks is an obstacle (2253). Consequently, we have 4621 loan applicants<sup>10</sup>. The lost of observations caused by missing answers is around 23% of the original sample. But we believe that this does not bias our results because the summary statistics of the original and the used sample look very similar (table 1).

The *Soft* variable reflects the expectations of managers concerning the bank's reaction if they fall behind in their bank repayments. More precisely, the question is the following:

*Now I would like to ask you a hypothetical question. If your firm were to fall behind in its bank repayments, which of the following would best describe how you would expect the bank to react? [1] Do nothing, [2] Extend the term of the loan without changing the condition, [3] Extend the term of the loan but increase the interest rate, [4] Begin legal proceedings to take possession of assets, [5] Don't know.*

**-Insert table 2-**

Concerning the answers, none of the managers answer that [5] they do not know. We assume that  $Soft_i = 1$  if the manager of the firm  $i$  expects that [1] the bank will do nothing or [2] the bank extend the term of the loan without changing the condition. Indeed, in these two cases, the loan is soft.  $Soft_i = 0$  if the manager of the firm  $i$  expects that [3] the bank will extend the term of the loan but increase the interest rate, or [4] the bank will begin legal proceedings to take possession

possession of assets. Considering that  $Soft_i = 0$  when the manager of the firm  $i$  expects [3] is defensible, but admittedly arbitrary. Furthermore, answer [3] is the answer the most often quoted (see table 2). Consequently, we have also considered that  $Soft_i = 1$  if the manager answers [3] but the results are qualitatively the same.

Following the framework of section 2, there are at least five sets of regressors of the *Soft* equation in which we are mainly interested. The variables of special interest are the following:

- We consider the variable *Col* to test implication 1, with  $Col = 1$  if the initial financing required collateral, 0 otherwise.
- For implication 2, we consider a set of dummy variables that reflects the ownership type of the main financial source of the firms. However, we note that the BEEPS data set does not specify if the loan in consideration came from the main financial source of the firm. Consequently, the results obtained will be only indicative. It might not reflect perfectly if the ownership of the funding source influences a manager's expectation to have a soft loan.
- For implication 3, we first consider a set of dummy variables that depicts the type of the firm's main shareholder. We especially expect that the manager of state firm has a higher probability to contractual arrangements such as term's extension. Furthermore, state firms might be a political capital and the banks will rather grant a loan to them because they expect the government plays as a ultimate guarantor.
- Second, we also consider a set of dummy variables that describe the firm's size.

We expect that the expectations to have a soft loan are higher (lower) for large

(small) firms. Furthermore, the bigger (smaller) the firm, the higher (lower) the probability that it is a political capital for the government, and thus the higher is the probability to obtain a loan in a first step.

- Third, a set of dummy variables standing for the firm's market power is introduced.

We will also introduce various control variables that might explain managers' expectations. First, we consider a dummy variable indicating if the firm had financial difficulties in the recent past or not. If the firm had been unprofitable, it means that it has been helped out, and the survival of the firm breaks away from its financial situation. Thus, "*the manager of the firm may feel that the probability has grown that his firm would also survive despite a financial failure caused by a wrong investment*" (Kornai, 1979, p.807). We will also control for the firm's and manager's characteristics: age and education of the manager, sector of activity and the percentage of sales by customers (the government, multinationals or others).

The right-hand side variables of the *loan* equation are, like in a traditional scoring model, variables reflecting the characteristics of the firm and its manager. Thus they are mainly the same than those of the *Soft* equation. However, identification of the parameters of the *Soft* equation necessitates exclusion restrictions. These variables would ideally influence the *Loan* equation, but not the *Soft* equation. We propose the following exclusion variables:

- A dummy variable (*IAS*) equal to 1 if the firm uses international accounting standards, 0 otherwise.
- A dummy variable (*Extaudit*) equal to 1 if the firm lets its annual financial

statement reviewed by an external auditor, 0 otherwise.

- A dummy variable (*Training*) equal to 1 if some employees received training in 2001 (managers or workers).

These exclusion variables can influence the bank's decision to grant a loan to the firm. Indeed, using international accounting standards, having an external auditor reviewing annual financial statement or offering formal training to employees can be perceived by the bank as a signal of a firm trying to adapt to the rules of a market economy. Consequently, a bank is more disposed to grant a loan to such a firm. However, there is no logical or theoretical explanations which can directly link these variables to the fact to have a soft loan or not (and none of them is statistically significant when we include them in a probit estimation of the *Soft* equation).

Finally we will use a set of dummy variables called *Macro* to control for differences in the quality of the banking system of the 26 countries. The quality of the banking system is reflected by the variable "Banking reform" of the EBRD in 2001. This variable comes from 1 to 4.33. However, this variable is ordinal but not cardinal. A score of 4 for a country does not mean that it has made twice as much progress in banking reform than a country scoring 2. To overcome this problem, we transform the "banking reform" (*BR*) indicator into three dummy variables. The variable *Macro1* takes the value 1 if the *BR* indicator is greater than 3, 0 otherwise. The variables  $Macro2 = 1$  if  $BR \in ]2, 3]$ , 0 otherwise and  $Macro3 = 1$  if  $BR \in [1, 2]$ , 0 otherwise.

## 4.2 Results

The bivariate censored probit estimates for the loan granting decision (*Loan*) and the expectation to have a soft loan (*Soft*) are presented in table 3. In all the specifications, we control for autocorrelation by clustering the bivariate censored probit at the country-level. Contrary to specification [B], specification [A] does not control for differences in the financial environment of 26 countries through the *Macro* dummy variables. In table 4, we present the marginal effects (or discrete changes for dummy variables) at the mean values of some important variables for the probability of obtaining a loan, i.e. it presents  $\frac{\partial Prob[Loan=1|X]}{\partial X}$ , with  $X = X1 \cup Z$ . The marginal effects of column [A] in table 4 correspond to the results of the selection equation *Loan* of specification [A] in table 3 and so on. In table 5, we present the marginal effects of some explanatory variables on manager's expectations at the means values, conditional to the obtention of a loan, i.e.  $\frac{\partial Prob[Soft|Loan=1,X]}{\partial X}$ . Finally, table 6 presents the marginal effects of change in  $X$  on the probability to obtain a soft loan, i.e.  $\frac{\partial Prob[Soft=1,Loan=1]}{\partial X}$ .

*-Insert tables 3, 4, 5 and 6-*

### **The collateral-testable implication 1-**

In line with the framework presented in section 2, firms' managers whom initial financing required collateral are less likely to expect to have a soft loan. A firm whom initial financing required collateral is 9.7 – 11.2% less likely to expect to have a soft loan when it has obtained previously a loan (table 5).

### **Ownership of the bank-testable implication 2-**



Surprisingly, we do not find any statistical positive relation between the fact that a bank is state-owned and expectations to have a soft loan. Furthermore there is no difference whatever the ownership of the funding sources. This result is perhaps due to the fact that we do not really know if the main financing source is the bank which grants the loan.

### **The size of the firm-testable implication 3-**

The larger the firm, the more likely to obtain a loan. Table 4 indicates that firms with more than 250 employees are 8.65-9.63% more likely to obtain a loan than firms which have between 50 and 250 employees *ceteris paribus*. Firms with less than 50 employees are 16.83 – 18.15% less likely to obtain a loan than firms which employ between 50 and 250 employees. Now, what is the influence of the firm's size on managers expectations to have an extension, conditional to the fact that they have obtained a loan? When they have obtained a loan, the expectations of firms with less than 50 employees are 6.6 – 7.57% less important than bigger firms (table 5). And, firms with less than 50 employees are 9.93 – 10.91% less likely to obtain a soft loan than the others (table 6). These results suggest that large firms constitute probably a political capital for the government. Consequently, the banks prefer to select big firms' loan applicants as they know that the government is a ultimate guarantor in case of financial trouble.

### **Ownership of the firm-testable implication 3-**

The results concerning the firm ownership contrast with those obtained for the size. First, state-owned enterprises are 6.8 – 8.6% less likely to obtain a loan than foreign firms (table 4). Furthermore, a state manager who obtains a loan is not more likely to expect the bank will help in case of trouble (table 5). It seems that state-

owned ownership per se does not constitute a reason for the government to rescue firms. On the contrary, when firms are owned by employees, firms are 8.1% more likely to obtain a loan when we control for the financial macroeconomic environment (specification [B], table 4). Furthermore, a firm owned by employees is 12.3% more likely to expect to have a soft loan when it has a loan (table 5).

These results, apparently paradoxical, might be explained by various elements. On the one hand, many authors highlight that governments have drastically reduced subsidies to SOE, especially in Hungary and Poland (Aghion & Blanchard, 1994; Pinto *et al.*, 1993). On the other hand, various authors highlight that policymakers gave away firms' ownership and control to employees to lean on them for supporting reforms, especially in CIS countries (Stern in Hirschler, 2000; Kornai, 2001). Thus, these governments couldn't do anything but help them in case of trouble through an extension of the terms of repayment (if the government controls the bank), or subsidies. Otherwise, the political capital that the governments obtained would have been lost.

In line with these remarks, it seems that the results concerning employee ownership obtained when we use all the sample are driven by CIS data. In fact, we estimated specification [B] by dropping the observations of CIS and non-CIS at a time<sup>11</sup>. When we considered only firms in CIS, firms owned by employees are 10.8% more likely to obtain a loan (at the 5% level) than foreign companies. Furthermore, they are 20.2% more likely to expect to have a soft loan when having a loan. On the contrary, in the non-CIS countries, firms owned by employees are not more likely to obtain a loan and do not have different expectations than the base group<sup>12</sup>.

### **Market power-testable implication 3-**

Firms which enjoy market power, i.e. having less than 4 competitors, are 6%-7% less likely to obtain a loan (table 4). Furthermore, the competition environment does not seem to influence managers' expectations (table 5).

### **Past firm's performance**

Firms which were unprofitable in 2001 are not more likely to obtain a loan. Thus, results might suggest that there is an amelioration of the banking system because various authors have shown that banks tended to give preferences to distressed firms to allocate credit during the nineties in transition countries (Bonin and Schaffer, 1995; Brana *et al.*, 1999; Coricelli and Djankov, 2001). However, managers of firms which were in financial distress in 2001 and who obtain a loan are more likely to believe that the bank will not engage legal proceedings if they fall behind in their repayment. Considering the firms that obtained a loan, those which were unprofitable in 2001 are 12 – 13.15% more likely to believe that they have a soft loan than those which were profitable in 2001 (table 4).

Lastly, the estimate of  $\rho$  that maximizes the bivariate probit likelihood presented in equation 8 is negative and significantly different from 0 in both specifications (see table 3) at the 15% level. It suggests that unexplained tendencies to grant a credit are associated with a lower frequencies of managers' expectations to have a soft loan.

To check the robustness of these results, we repeated the estimations for various sub-samples and control variables (not reported). We first repeated the regressions for various sub-samples. We estimated the same specifications by dropping all the observations of one country at a time. Second, we divided the data set into the CIS and the non-CIS countries. Results were qualitatively the same, except for the “employee ownership variable” as mentioned previously. Third, we also introduced

country dummy variables instead of the *Macro* dummies. Results were identical. Lastly, the *Soft* variable reflects the expectations of managers concerning the bank's reaction in case of trouble. We highlighted in subsection 4.1 that we considered  $Soft = 0$  when managers expect [4] that the bank will begin legal proceedings to take possession of assets and also when [3] the bank will extend the term of the loan but increase the interest rate. Considering that  $Soft = 0$  when managers answer [3] is arbitrary; thus we also considered that  $Soft = 1$  when managers answer [3]. Results were broadly the same. The main difference concerns the collateral variable. If we consider  $Soft = 1$  when managers answer [1], [2] or [3], we conclude at the 5% level of significance that firms whom initial financing required collateral are 4.97% less likely to expect to have a soft loan when it get a loan (contrary to 9.7 – 11.2% obtained previously).<sup>13</sup>

## 5 Conclusion

This empirical paper considers that the SBC syndrome occurs when a funding source (in our case banks) cannot commit to hold an enterprise to a fixed initial budget and/or the timing of repayment. Four results seem to be robust. First, managers' expectations to have a soft loan are lower when the initial financing requires collateral. Second, the probability to obtain a loan as well as the probability to expect a soft loan are higher for large firms. The third conclusion is not trivial: managers of state firm don't exhibit different expectations than managers of other firms and have a lower probability to obtain a loan. Finally, managers of firms which were in financial distress in the past history are more likely to believe that the bank

will not engage in legal proceedings.

We conclude with two words of caution. First, concerning the no significance of the ownership of banks, our results are no more than suggestive because we do not really know if the main financing source is the bank which grants the loan. Second, we assumed in the paper that *Soft* really measures soft budgets, i.e. expectations are perfect. But it might reflect manager's erroneous expectations. Nevertheless, the dependent variable examined in our paper reflects an important element of reality as highlighted by Anderson et al (2000). Even if expectations are erroneous, it is expectations that lead to inefficient enterprise decisions. These two remarks highlight that we need more surveys specifically designed for studying the determinants of the SBC phenomenon. It might open a wide field for further research.

## Notes

<sup>1</sup>HBC and BC stand respectively for hard budget constraint and budget constraint.

<sup>2</sup>For example Huang and Xu (1998) believe that the SBC in the banking sector of East Asia have played an important role in the financial crisis of the late nineties.

<sup>3</sup>See Kornai *et al.* (2003) for a review of theoretical explanations of the SBC syndrome.

<sup>4</sup>For example, Qian and Roland (1998) remarks that “*Subsidization of loss-making firms is often an indicator of soft budget constraints. However, subsidies are not identical to soft budget constraints. There are cases in which firms receive subsidies but do not expect to be bailed in cases of bad financial performance.*”

<sup>5</sup>Two other important empirical papers provide indirect confirmation that SBC is incorporated in managers’ expectations. Using a sample of several hundred Chinese state firms over the period 1980-1994, Li and Liang (1998) show that losses were especially due to labor redundancy. It confirms indirectly that managers were convinced to be perpetually rescued. In a panel data set of Italian state-owned firms interviewed from 1977 to 1993, Bertero and Rondi (2000) indirectly show that managers’ expectations evolved at the end of the 1980s: state firms responded to the decrease of subsidies and bank loans (probably due to the European Union pressure in order to reduce state aid and to accelerate privatization programs) by increasing productivity and reducing overmanning.

<sup>6</sup>See, to name but a few examples, Bonin and Schaffer (1995) and Schaffer (1998) for Hungary, Brana *et al.* (1999) for Russia, Coricelli and Djankov (2001) for Romania.

<sup>7</sup>As argued by Kornai (1998a), a firm which enjoys market power might be a political capital because the liquidation of its assets may upset other firms as well, and precipitate a serious loss for the society.

<sup>8</sup>See also Boyes *et al.* (1989) and Greene (1992) who applied the same econometric model to credit scoring.

<sup>9</sup>Albania, Armenia, Azerbaijan, Belarus, Bosnia, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, Tajikistan, Ukraine, Uzbekistan, Yugoslavia.

<sup>10</sup>The initial data set is composed from 6367 firms. We dropped first 511 Turkish firms. We also dropped 1225 firms which were not loan applicants. Finally, 10 officials do not answer if they have obtained a loan recently or not.

<sup>11</sup>Results are not reported but available upon request.

<sup>12</sup>Differences also occur for family firms: it is apparently easier for a family firm in non-CIS countries to obtain a loan than in CIS countries. In both cases, expectations to have a soft loan is identical to the base group.

<sup>13</sup>Remember that [1] means that the manager expects that the bank will do nothing if the firm falls behind in its bank repayment and [2] the bank will extend the term of the loan. We also conclude that managers of firms which were in financial distress in 2001 and who obtain a loan are not more likely to believe that the bank will not engage legal proceedings. In fact, this change in the results occurs because, when we also consider that  $Soft = 1$  when managers answer [3], the percentage of firms for which  $Soft = 1$  that are in financial trouble is largely reduced. If we consider that  $Soft = 1$  when managers answer [1] and [2], 8.8% of these firms were in trouble in 2001. If we consider that  $Soft = 1$  when managers answer [1], [2] and [3], 6.6% of these firms were in trouble in 2001 (89/1340). This difference of 2.2 points is due to the fact that only 4.5% of the 663 firms answering [3] were in financial difficulties in 2001.

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Table 1: Descriptive statistics of the main variables of the sample

Firm's characteristics	Original sample			Used sample			Both samples	
	Obs	Mean	Std. dev.	Obs	Mean	Std. dev.	Min	Max
The firm recently got a loan	4621	0.512	0.499	3531	0.489	0.499	0	1
Unprofitable in 2001	4388	0.061	0.239	3531	0.060	0.238	0	1
<i>Largest shareholder</i>								
Individual	4631	0.514	0.499	3531	0.510	0.499	0	1
Family	4631	0.065	0.248	3531	0.067	0.250	0	1
Domestic company	4631	0.073	0.259	3531	0.073	0.260	0	1
Foreign company	4631	0.095	0.294	3531	0.096	0.295	0	1
Manager of the firm	4631	0.030	0.172	3531	0.029	0.169	0	1
Employees of the firm	4631	0.036	0.186	3531	0.037	0.189	0	1
Government	4631	0.123	0.329	3531	0.128	0.334	0	1
Others	4631	0.060	0.238	3531	0.058	0.232	0	1
<i>Firm's size</i>								
Less than 49 employees	4631	0.669	0.470	3531	0.664	0.472	0	1
Between 50 - 249 employees	4631	0.186	0.389	3531	0.186	0.389	0	1
More than 250 employees	4631	0.144	0.351	3531	0.149	0.356	0	1
<i>Market power</i>								
Monopoly	4542	0.013	0.113	3531	0.013	0.113	0	1
1-3 competitors	4542	0.163	0.369	3531	0.166	0.372	0	1
4 or more competitors	4542	0.823	0.380	3531	0.820	0.383	0	1
<i>Customers</i>								
Sales to government	4631	10.269	23.68	3531	10.820	24.37	0	100
Sales to multinationals	4631	4.024	13.77	3531	4.18	14.14	0	100
<b>Manager's characteristics</b>								1
Expect to be bailed out by the bank	2025	0.412	0.492	1676	0.405	0.490	0	1
<b>Loan's characteristics</b>								
collateral	2368	0.806	.385	1676	0.815	0.378	0	1
<i>Financing Source</i>								
Local private bank	4631	0.100	0.300	3531	0.096	0.293	0	1
State bank	4631	0.056	.230	3531	0.052	0.221	0	1
Foreign bank	4631	0.024	.154	3531	0.024	0.153	0	1
>From family and friends	4631	0.073	.260	3531	0.070	0.255	0	1
Government	4631	0.017	.130	3531	0.015	0.121	0	1
<b>Exclusion variables</b>								
External auditor	4513	0.491	0.499	3531	0.491	0.499	0	1
International accounting standards	4237	0.397	0.489	3531	0.385	0.486	0	1
Training	4584	0.525	0.499	3531	0.525	0.499	0	1

Table 2: Enterprise officials were asked the following question: If your firm were to fall behind in its bank repayments, which of the following would best describe how you would expect the bank to react? - Total sample

	Total sample		Used sample	
	Number	Percent	Number	Percent
[1] Do nothing	106	5.23	84	5.01
[2] Extend the term of the loan without changing the condition	729	36.00	593	35.42
[3] Extend the term of the loan but increase the interest rate	800	39.51	663	39.54
[4] Begin legal proceedings to take possession possession of assets	390	19.26	336	20.03
Total	2,025	100.00	1676	100

Note: only firms which obtained a loan have answered to this question.

Table 3: Bivariate censored probit estimates

	[A]		[B]	
	Soft	Loan	Soft	Loan
<b>Main Shareholder</b>				
Individual	0.041	-0.018	0.040	0.021
Family	-0.15	<b>0.25**</b>	-0.16	<b>0.23**</b>
Domestic company	-0.14	<b>0.32***</b>	-0.16	<b>0.35***</b>
Foreign company	Base group		Base group	
Managers	-0.016	-0.05	-0.011	0.04
Employees	0.21	0.078	0.21	0.20
Government	0.12	<b>-0.22***</b>	0.11	<b>-0.17**</b>
Others	0.11	0.064	0.09	0.04
<b>Firm's size</b>				
Employees<50	-0.02	<b>-0.42***</b>	-0.014	<b>-0.46***</b>
50≤Employees<250	Base group		Base group	
Employees≥250	-0.12	<b>0.24***</b>	-0.13	<b>0.21***</b>
<b>Market power</b>				
Monopoly	-0.12	-0.15	-0.12	<b>-0.17**</b>
1-3 competitors	Base group		Base group	
4 or more competitors	0.009	-0.049	0.007	-0.05
<b>Customers</b>				
Sales to government	-0.001	-0.002	-0.001	-0.0006
Sales to multinationals	-0.003	0.002	-0.003	0.001
<b>Loan's characteristics</b>				
Collateral	<b>-0.27***</b>		<b>-0.23**</b>	
<b>Financing source</b>				
Local private bank	0.11		0.11	
State bank	0.03		-0.01	
Foreign bank	0.009		0.016	
>From family-friends	-0.21		-0.18	
Government	-0.38		-0.39	
Unprofitable in 2001	<b>0.30**</b>	-0.001	<b>0.31*</b>	-0.08
External audit		<b>0.17**</b>		<b>0.14**</b>
Training		<b>0.36***</b>		<b>0.30***</b>
IAS		0.08		<b>0.12*</b>
Manager education dummies	Yes	Yes	Yes	Yes
Manager age dummies	Yes	Yes	Yes	Yes
Sector dummies	Yes	Yes	Yes	Yes
Macro dummies	No	No	Yes	Yes
$\rho$	<b>-0.49<sup>†</sup></b>		<b>-0.53<sup>†</sup></b>	
$\chi^2(1)$	2.26		2.44	
N	3531		3531	
N censored	1855		1855	
Log likelihood	-3278.33		-3217.76	

Notes: †, \*, \*\* and \*\*\* represent 10, 5 and 1% significance, respectively. Standard errors are clustered by country in the three specifications.

Table 4: Some marginal effects of change in  $X$  for the probability to obtain a loan  $\frac{\partial \text{Prob}[Loan=1|X]}{\partial X}$

	[A] $\frac{d\text{Prob}[Loan=1 X]}{dX}$	Std. Err.	[B] $\frac{d\text{Prob}[Loan=1 X]}{dX}$	Std. Err.
<b>Main Shareholder</b>				
Individual	-0.007	0.023	0.008	0.024
Family	<b>0.099**</b>	0.045	<b>0.094**</b>	0.041
Domestic company	<b>0.130***</b>	0.032	<b>0.139***</b>	0.033
Foreign company	Base group		Base group	
Managers	-0.02	0.081	0.015	0.082
Employees	0.031	0.051	<b>0.081*</b>	0.042
Government	<b>-0.086***</b>	0.028	<b>-0.068**</b>	0.029
Others	0.025	0.056	0.018	0.046
<b>Firm's size</b>				
Employees<50	<b>-0.168***</b>	0.020	<b>-0.18***</b>	0.016
50 ≤ Employees < 250	Base group		Base group	
Employees ≥ 250	<b>0.096***</b>	0.022	<b>0.086***</b>	0.020
<b>Market power</b>				
Monopoly	<b>-0.06*</b>	0.032	<b>-0.07**</b>	0.032
1-3 competitors	Base group		Base group	
4 or more competitors	-0.009	0.023	-0.020	0.022
Unprofitable in 2001	-0.004	0.054	-0.003	0.04

Notes: †, \*, \*\* and \*\*\* represent 10, 5 and 1% significance, respectively. The estimators are marginal effects at the means values. The estimators presented in column [A] are associated with the selection equation (*Loan*) of the bivariate probit with censoring presented in column [A] of table 3. Column [B] is likewise.

Table 5: Some marginal effects of change in  $X$  for the probability of expecting to have a soft loan given that the firm has obtained a loan:  $\frac{\partial \text{Prob}[\text{Soft}|\text{Loan}=1, X]}{\partial X}$

	[A]		[B]	
	$\frac{d\text{Prob}[\text{Soft} \text{Loan}=1, X]}{dX}$	Std. Err.	$\frac{d\text{Prob}[\text{Soft} \text{Loan}=1, X]}{dX}$	Std. Err.
<b>Main Shareholder</b>				
Individual	0.015	0.031	0.020	0.032
Family	-0.032	0.060	-0.034	0.061
Domestic company	-0.017	0.045	-0.016	0.046
Foreign company	Base group		Base group	
Managers	-0.014	0.076	0.001	0.080
Employees	0.103	0.072	<b>0.123*</b>	0.067
Government	0.019	0.066	0.022	0.066
Others	0.055	0.049	0.047	0.054
<b>Firm's size</b>				
Employees<50	<b>-0.066**</b>	0.0329	<b>-0.075**</b>	0.031
50 ≤ Employees < 250	Base group		Base group	
Employees ≥ 250	-0.021	0.0323	-0.021	0.033
<b>Market power</b>				
Monopoly	-0.071	0.108	-0.079	0.104
1-3 competitors	Base group		Base group	
4 or more competitors	0.0005	0.03	-0.004	0.032
<b>Loan's characteristics</b>				
Collateral	<b>-0.112***</b>	0.032	<b>-0.097***</b>	0.032
Unprofitable in 2001	<b>0.131**</b>	0.052	<b>0.122*</b>	0.064

Notes: †, \*, \*\* and \*\*\* represent 10, 5 and 1% significance, respectively. The estimators are marginal effects at the means values. The estimators presented in column [A] are associated with the bivariate probit with censoring presented in column [A] of table 3. Column [B] is likewise.



Table 6: Some marginal effects of change in  $X$  for the probability to have a soft loan:  $\frac{\partial \text{Prob}[\text{Soft}=1, \text{Loan}=1]}{\partial X}$

	[A]		[B]	
	$\frac{d\text{Prob}[\text{Soft}, \text{Loan}=1]}{dX}$	Std. Err.	$\frac{d\text{Prob}[\text{Soft}, \text{Loan}=1]}{dX}$	Std. Err.
<b>Main Shareholder</b>				
Individual	0.004	0.0176	0.013	0.018
Family	0.02	0.035	0.016	0.036
Domestic company	0.039	0.027	0.043	0.030
Foreign company	Base group		Base group	
Managers	-0.014	0.05	0.006	0.052
Employees	0.064	0.046	<b>0.098***</b>	0.037
Government	-0.025	0.025	-0.016	0.024
Others	0.037	0.03	0.03	0.029
<b>Firm's size</b>				
Employees<50	<b>-0.10***</b>	0.014	<b>-0.109***</b>	0.013
<=Employees<250	Base group		Base group	
Employees>=250	0.025	0.02	0.021	0.020
<b>Market power</b>				
Monopoly	-0.053	0.042	<b>-0.058<sup>†</sup></b>	0.04
1-3 competitors	Base group		Base group	
4 or more competitors	-0.003	0.015	-0.009	0.017
<b>Loan's characteristics</b>				
Collateral	<b>-0.053***</b>	0.018	<b>-0.047***</b>	0.017
Unprofitable in 2001	<b>0.062**</b>	0.028	<b>0.041<sup>†</sup></b>	0.028

Notes: †, \*, \*\* and \*\*\* represent 15, 10, 5 and 1% significance, respectively. The estimators are marginal effects at the mean values. The estimators presented in column [A] are associated with the bivariate probit with censoring presented in column [A] of table 3. Column [B] is likewise.