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ABSTRACT

In this paper we use a survey of 281 Czech, Hungarian and Polish newly established small private firms in order to shed some light on the constraints these firms face in the credit market. The results of our survey show that imperfections in capital markets in Central European economies do not seem to actually inhibit the growth of new private firms. Credit markets not only exist for *de novo* private firms in the three Central European transition economies studied, but they provide quite a large amount of financing and do so from a remarkably early stage of the existence of firms. Financial intermediation works reasonably well as far as *de novo* private firms are concerned: loss-making *de novo* firms have a lower probability of getting credit than profitable ones. Banks protect themselves against the risk of a deteriorating pool of borrowers by requiring collateral for their loans. We do not find convincing evidence concerning the existence of adverse selection. Loss-making firms are not ready to pay higher interest rates than profitable firms and are not more likely to ask for credit than profitable firms.

NON-TECHNICAL SUMMARY

There is a widespread view among economists that imperfections in capital markets are particularly severe in the new market economies in Central and Eastern Europe and that they are particularly likely to affect *de novo* private firms. Since the beginning of transition there was a concern that new private firms, about which lenders have less information, would be crowded out in capital markets by the established state-owned enterprises. It has been argued that small firms access to external finance would be difficult because they are *de novo*, have no credit history, track record, collateral, etc. This concern is common to small and medium-sized enterprises in any economy, whether in transition or not. More specifically for transition countries, banks were supposed to prefer lending to the existing state-owned enterprises which had political leverage and with which they had developed long-term relationships before the transition.

In this paper we use a survey of 281 Czech, Hungarian and Polish newly

established small private firms in order to shed some light on the effective constraints these firms face in the credit market and on the capacity of financial systems to finance their growth, and therefore the sector's ability to contribute to economy-wide restructuring. The advantage of our survey is that it allows us to separate supply and demand effects: we know which firms have asked for credit and which firms have been refused credit, not merely which firms have received credit, and which have not.

The questionnaire was formulated so as to provide some direct evidence about the availability of credit and financial constraints facing the firms interviewed. This direct evidence is unambiguous as far as the existence of a credit market for *de novo* private firms in the three Central European countries is concerned: 49 per cent of the sample (137 firms) had obtained bank credit at some time during their operation. Second, firms seem to be able to get credit remarkably early on in their existence. This suggests that banks do not require a long track record before granting credit and that a loan market exists also for very new firms: 68 per cent of firms which received credit, and gave the date of the first credit they received, got it in the first two years of their existence.

It is important to note, however, that the availability of collateral appears to be a key condition of getting credit: 78 per cent of firms that asked for credit needed collateral. Not surprisingly, banks try to protect themselves against the risk of a deteriorating pool of borrowers by requiring security for their loans. However, this does not seem to prevent firms from getting credit: the small new private firms in our survey are typically able to provide collateral.

The results of our survey show that imperfections in capital markets in Central European economies do not seem to actually inhibit the growth of new private firms. Credit markets not only exist for *de novo* private firms in the three Central European transition economies studied, but they provide quite a large amount of financing and do so from a remarkably early stage of the existence of firms (in all three countries but particularly in the Czech Republic).

When we look separately at the demand and the supply sides of the credit market we find that financial intermediation works reasonably well as far as *de novo* private firms are concerned: loss-making *de novo* firms have a lower probability of getting credit than profitable ones. Banks protect themselves against the risk of a deteriorating pool of borrowers by requiring collateral for their loans.

We do not find convincing evidence concerning the existence of adverse selection. Unprofitable firms are not ready to pay higher interest rates than profitable firms. Firms which are loss-making in 1995 are not more likely to ask for credit in the future than profitable firms; however firms whose profitability decreased in recent years are more likely to ask for credit than firms whose profitability did not decrease.

On balance, the banking system in the three Central European countries is operating far better (at least as regards *de novo* private firms) than one might have expected after only six or seven years of operation. A possible interpretation of our results is that the reform and the reorganisation of the banking sector contributed to the reorientation of bank credit to the new private sector. This, in turn, supported the

adjustment and the recovery of the economy.

1. Introduction

There is a widespread view among economists that imperfections in capital markets are particularly severe in the new market economies in Central and Eastern Europe and that they are particularly likely to affect *de novo* private firms (Cornelli et al., 1996; Coricelli, 1998; Anderson et al., 1996). Since the beginning of transition there was a concern that new private firms, about which lenders have less information, would be crowded out in capital markets by the established state-owned enterprises. It has been argued that small firms access to external finance would be difficult because they are *de novo*, have no credit history, track record, collateral, etc. This concern is common to small and medium-sized enterprises in any economy, whether in transition or not. According to Fazzari et al. (1988), «during periods of tight credit, small and medium-sized borrowers are often denied loans in favor of better quality borrowers». More specifically for transition countries, banks were supposed to prefer lending to the existing state-owned enterprises which had political leverage and with which they had developed long-term relationships before the transition.

There is a large theoretical literature showing that asymmetric information (leading to adverse selection or moral hazard) may result in credit rationing (Stiglitz and Weiss, 1981; Myers and Majluf, 1984, Bester and Hellwig, 1987). Having difficulties in distinguishing potentially good from bad borrowers banks may increase the interest rate which in turn may contribute to a worsening of the pool of applicants. Firms with a lower probability of success may be willing to take more risk and pay a higher interest rate on loans, because they consider their probability of repaying the loan to be low. Firms with relatively good prospects, more sensitive to the high cost of credit, could be forced out of the credit market.

If banks fear that adverse selection may occur, then either 1/ credit ceases to be available except to firms which have a track record and/or the required collateral,

or 2/ banks maintain interest rates below the equilibrium level to avoid "deteriorating the pool" of applicants; in such cases banks have to ration all borrowers to less credit than these would wish, or choose at random which applicants within the pool to lend to, with the similar result that many good applicants are credit constrained (i.e. unable to obtain as much credit as they want at the prevailing interest rates).

In this paper we use a survey of 281 Czech, Hungarian and Polish newly established small private firms in order to shed some light on the effective constraints these firms face in the credit market and on the capacity of financial systems to finance their growth, and therefore the sector's ability to contribute to economy-wide restructuring. The advantage of our survey is that it allows us to separate supply and demand effects: we know which firms have asked for credit and which firms have been refused credit, not merely which firms have received credit, and which have not.

The main finding of the paper is that imperfections in capital markets in Central European economies do not seem to actually inhibit the growth of new private firms. Credit markets not only exist for *de novo* private firms in the three Central European transition economies studied, but they provide quite a large amount of financing and do so from a remarkably early stage of the existence of firms. The lack of finance does not appear to be a key impediment to the growth of new firms [1]. Banks require collateral for loans but they do provide credit to even very young small private firms.

We first present the sample and give some descriptive statistics. Then we estimate an investment equation in order to test for the importance of financial constraints. In sections 4 and 5 we look separately at the demand and the supply sides of the credit market. On the supply side we try to determine how banks allocate credit: are banks able to distinguish bad from good firms? do they lend to firms with higher profitability? are they providing funds to firms with good prospects but weak track records? On the demand side, we look for evidence of adverse selection: are poorly performing firms more likely to ask for credit? In section 6 we give some interpretation of country specifities. Section 7 concludes.

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[1] A recent empirical paper by Johnson et al. (1998) also finds no evidence that the lack of bank

2. Description of the sample

The survey was designed to study various constraints on the entry of firms which started from scratch. These firms were drawn from the Company Registers kept at courts, statistical agencies or associations of entrepreneurs. The initial sample consisted of 400 newly established enterprises, one hundred each in the Czech Republic, Hungary and Poland, and fifty each in Albania and Lithuania. For a detailed presentation of the sample see Hashi and Mladek (1998). Because of the weak quality of data for the latter two countries, we focus on the three Central European countries. Eventually, having checked for inconsistencies, our sample consists of 281 enterprises, which were established in the early period of transition (1990-1994): 95 in the Czech Republic, 97 in Hungary and 89 in Poland [2]. The sample in each country was chosen so as to reflect the share of manufacturing, construction, trade and service in the national economy (in terms of employment). In order to mitigate a bias towards the capital cities, 25-33 per cent of firms in each country were selected from a less developed region [3]. The firms were selected in 1995[4] and the interviews with the owner or the manager, using a standard questionnaire of about 70 questions,[5] were conducted in mid-1997. (Complete questionnaire is available on request). The participation of firms was voluntary.

Any conclusions we arrive at in this paper are, of course, limited by the nature of our population of start-ups and the unresolved question of «survivorship bias». Firms selected in 1995 are not a random sample of all firms created between the beginning of the transition and the date of interview. They contain an over-representation of those which have survived long enough to be interviewed. This introduces two kinds of bias. First, if better firms survived and better firms are granted

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finance inhibits private sector growth.

2 About fifteen firms were eliminated from the initial sample due to inconsistencies.

3 The districts of Prostejov and Olomouc in Central Moravia in the Czech Republic, the Hajdu-Bihar district in Hungary and the districts of Koszalin and Lomza in Poland.

4 To be sure, firms selected in 1995 cannot be considered as a random sample of all firms created between the beginning of the transition and the date of interview. They contain an over-representation of those which have survived long enough to be interviewed.

5 The questionnaire was on barriers to entry for new private firms. One third of the questions were on

credit by banks, then our sample will overstate the number of firms which receive credit because it does not take into account those which were excluded from the sample by liquidation. Second, if firms that receive credit are more likely to survive thanks to the credit they have received, the effect will be similar. We have not in fact been able to eliminate these biases, and therefore merely warn readers of their existence in advance.

Most firms in the sample (72 per cent in 1995) employ less than 50 full-time employees. The average employment increased from 6 in 1990 to 41 in 1995. A few firms, which have increased their employment levels since they have been selected, employ more than 200 workers (maximum: 289). Individual proprietorships and businesses run by physical persons were excluded.

The questionnaire was formulated so as to provide some direct evidence about the availability of credit and financial constraints facing the firms interviewed. This direct evidence is unambiguous as far as the existence of a credit market for *de novo* private firms in the three Central European countries is concerned: 49 per cent of the sample (137 firms) had obtained bank credit at some time during their operation [6]. Second, firms seem to be able to get credit remarkably early on in their existence. It suggests that banks do not require a long track record before granting credit and that a loan market exists also for very new firms: 68 per cent of firms which received credit, and gave the date of the first credit they received, got it in the first two years of their existence (see Table 1). Czech firms seem to be able to obtain their loans particularly early after establishment, with 67% of those who receive any bank credit getting it in the first two years of their existence (Table 1). The equivalent figures for Hungary and Poland are 39% and 33%.

Not all firms gave the date of the first bank loan they received, and the sample clearly suffers from survival bias. Nevertheless, the results are certainly at odds with conventional wisdom regarding the availability of credit for new firms in the region, and were a considerable surprise to the authors.

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financial barriers.

6 It should be noted that almost no credit has been obtained through special schemes targeted at helping new businesses.

Furthermore this evidence is corroborated by firms' own assessment of the investment effort they have undertaken and by the data about the sources of investment finance. In answering the question whether their investment since establishment has been adequate, only 28 per cent of firms answered that it had been inadequate, 65 per cent answered that it had been adequate, and 7 per cent answered that it had been excessive. The answers to the questions concerning the sources of finance for investment, for working capital and for start-up capital show that the role of bank credit is not negligible (see Tables A1, A2 and A3 in the Appendix) [7]. Bank loans made up a far larger share of the financing of investment, working capital and start-up capital in the Czech Republic than in the other two countries (among those firms, which did receive credit). This may not be too surprising, as the depth of banking, measured by the ratio of bank credit to the private sector to GDP, is greater in the Czech Republic than in Poland and Hungary (Table A4). Among the 49 per cent of firms which received any bank loans, slightly under 20 per cent of investment was financed by bank credit in Hungary and Poland and 36 per cent of investment was so financed in the Czech Republic. In all three countries, among receivers of bank loans, such loans were far more important than trade credit in financing investment, and in the Czech Republic they were more important even than retained earnings! Again unexpectedly, in spite of the well known tendency of banks in transition economies to lend short-term, in Hungary and in Poland bank loans were relatively more important in financing investment than in financing working capital. In Hungary and Poland the share of bank loans in the financing of working capital was smaller than the share either of retained earnings or trade credit. But in the Czech Republic, bank credit was far more important than trade credit and almost as large as retained earnings (again for those firms that did receive at least one loan). Not surprisingly in all three countries bank loans were less important in financing start-up capital than either working capital or investment, but in the Czech Republic (again) they accounted for 21 per cent of start-up capital (among receivers of loans).

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[7] The following questions were asked: "What were the main sources for your investment. Please indicate the approximate % share of the following sources: own savings, retained profits, loans from banks, etc." Similar questions were asked about the sources of finance for working capital and the

It is important to note, however, that the availability of collateral appears to be a key condition of getting credit: 78 per cent of firms that asked for credit needed collateral [8]. Unsurprisingly, banks try to protect themselves against the risk of a deteriorating pool of borrowers by requiring security for their loans. But this does not seem to prevent firms from getting credit: the small new private firms in our survey are typically able to provide collateral.

In order to get some evidence about the possibility of adverse selection, we look at the interest rate firms declare themselves ready to pay [9]. If we find that worse firms are prepared to pay a higher interest rate than better firms, this might be considered as support for the hypothesis that firms with lower probability of success are willing to take more risk. Taking separately profitable and unprofitable firms (in 1995) we find that on average the interest rates they declare ready to pay are not significantly different [10].

3. The investment equation

The first way of looking at the question of whether newly established small firms are constrained in their investment by internal funds, is to estimate an investment equation augmented with a proxy for internal finance. A strong and significant correlation between investment and cash flows is usually considered as evidence of liquidity constraints. A large stream of literature initiated by Fazzari et al. (1988) has adopted such approach [11]. For the countries in transition, Perotti and Gelfer (1998) have shown that investment in firms belonging to financial-industrial groups in Russia is less sensitive to cash flow than investment in other firms. Lizal

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start-up capital.

[8] 3.7 per cent of firms that received credit did not need collateral and 65 per cent of firms that have been refused a loan gave the lack of collateral as the main reason.

[9] The following question has been asked: "What is the annual rate of interest (in nominal terms) which you can afford to pay?" We use the answers to this question scaling it by the current interest rate prevailing in each country.

[10] In testing the null hypothesis that both groups of firms pay the same interest rate, the value of relevant F-statistics is 0.68.

[11] See also, for example, Bond et al.(1997), Bond and Meghir (1994). It should be noted, however, that Kaplan and Zingales (1997) question the use of the investment-cash flow sensitivity as a

and Svejnar (1998) do not find evidence of a positive link between availability of internal finance and investment in their sample of Czech firms.

Following this literature, if firms were financially constrained, their investment would depend upon internally generated funds [12]. However, to capture such effect, we obviously must control for investment opportunities: otherwise, the variable representing the internal finance might in fact capture both investment prospects (high cash flow may simply signal better firms) and financial constraints. In order to deal with this problem we need to control for a potential improvement in future profitability. In the case of small firms it is not easy to find an appropriate proxy. In an accelerator model of investment, firms' production growth is used as a proxy for firms' prospects. Although in our survey we do not have data on sales or production, this might not be as big a loss as it appears, given that in the period of transition such backward looking variables as past production growth may not be an adequate proxy for expected profitability of investment (cf. Anderson and Kegels, 1997; Grosfeld and Nivet 1997) [13]. It may even be less appropriate in the case of start-ups, which may have excellent investment prospects, while their sales growth is not impressive. Looking for a proxy for investment opportunities we chose to use employment growth: in large enterprises, which typically face problems of downsizing, such measure would obviously be inappropriate, but in small new private firms it may be considered as reflecting expected profits [14].

Thus, we estimate an investment equation in which the level of investment undertaken by the firm (normalised by the size of its initial assets [15]) is explained by:

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measure of financing constraints.

[12] We must be careful, however, in interpreting the evidence of financial constraints in small enterprises. The financial structure of these firms may reflect preferences of the owners as much as constraints placed upon them by suppliers of finance: trying to minimise external interference, they may prefer using first retentions, then debt and finally equity (cf. Hughes and Storey, 1991).

[13] However, Lizal and Svejnar (1998) provide support for the use of an accelerator type model of investment in transition: they find that investment in the Czech Republic is positively linked to lagged production.

[14] Johnson et al. (1998) also consider employment growth as the most important measure of performance for *de novo* firms. To have a complete picture, we take into account the number of both full time and part time employees.

[15] The definition of assets used in the Czech part of the survey includes only physical assets and not total assets as in the remaining countries. This may partly explain the result that Czech firms invested significantly more relative to their assets at the beginning of their activity, than did firms in the other two countries.

(1) the employment growth between the date of establishment and 1995; (2) its age; (3) profitability as a proxy for cash-flow in 1994, and (4) country and sectoral dummies. If the profitability variable [16] has a positive influence on investment, then we can take this to mean that investment decisions are constrained by the availability of cash flow, which implies that borrowers are indeed credit rationed.

The results of the regressions for different sub-samples are presented in Table 2. In all regressions the coefficient of the proxy for cash flow comes with the expected sign and is statistically significant. In regression (1), when we take the whole sample, the coefficient of profitability is positive and significant at 5 per cent. If we restrict our sample to those firms that obtained credit (regression 2), the sensitivity of investment to profitability turns out to be twice as strong. When we take those firms which did not receive credit (regression 3) or did not ask for credit (regression 4), we find that they are less liquidity constrained than firms which got credit. If we assume that employment growth captures investment opportunities, we thus obtain the result that firms which did not receive credit or did not ask for credit are less financially constrained in their investment behaviour than firms that did receive credit. This result could be interpreted as evidence of a particular kind of self-selection: firms which are less constrained in their investment by their cash-flow (proxied by profitability) simply do not ask for credit. It should be noted, however, that for firms that did not get credit, employment growth turns out not to be significant. Therefore, the profitability variable may in fact capture both the better investment opportunities of the firms and the financial constraints which they face.

In regression (5) we wanted to check whether the availability of credit is significant for the level of investment of those firms that get it: we therefore include the level of loans the firms obtained (normalised by their assets at the beginning of their activity) in the investment equation.

The results show a very large and significant coefficient of relative indebtedness and a strong improvement in the fit of the regression. The value of

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[16] Information about profitability was given in the survey on a five point scale: respondents stated whether their firms had made «large losses», «small losses», «neither losses nor profits», «small profits» and «large profits».

credit obtained (relative to assets) dominates other individual characteristics in the regression as an explanation of investment. The fact that the employment growth variable enters insignificantly when the loan/asset ratio is included in the equation, may suggest that the ability of the firms to expand employment reflects their ability to receive finance (if banks successfully identify good investment opportunities among firms that apply for credit, loans may become a better proxy for fundamentals than employment growth, which becomes insignificant in this specification). The simpler alternative explanation is that for firms which obtain credit, investment depends above all on their access to credit.

In order to shed some light on these issues we look next at the credit market and estimate separately the supply of credit and the demand for credit. This is possible because our survey allows us to distinguish between those firms that have obtained credit and those that have asked for it.

4. Determinants of the supply of credit

In order to understand the supply of credit process, we estimated the likelihood of a firm getting credit, i.e. the likelihood that a firm, which has asked for credit in the past, has received it [17]. By including only firms which asked for credit, we avoid the identification problem, which emerges when we do not have information about which firms have actually asked for credit. Thus we are less exposed to the danger of taking as a determinant of the supply of credit a variable which in fact determines the demand for credit. As explanatory variables we include the value of assets at the beginning of activity (which can be considered as a proxy for the availability of collateral), employment growth, profitability, age (as a proxy for the degree of asymmetric information since it provides a track record), country and sectoral dummies. The results are presented in Table 3.

The results show that the coefficient of the value of assets at the beginning of activity is positive and strongly significant, which suggests that banks are reasonably

prudent since they allocate credit to firms that are able to provide collateral. This confirms what we said in section 2.1 about the importance of collateral as a condition of obtaining credit. Sectoral dummies are not significant (and not shown) except for construction, which invests significantly less than other sectors. The profitability variable appears significant at 10 per cent. The decision of lenders to grant a loan to a firm appears sensitive to profitability at the time of the granting of the loan [18]. This suggests that banks behave reasonably well, in the sense that they are at least able to discriminate between firms with high profits and those with low profits: the loss-making firms are less likely to get credit than profitable ones [19].

Interestingly, the age of the firm at the time at which it received credit (an indicator of track record) does not appear significant. This confirms the descriptive statistics presented in Table 1, and suggests that asymmetric information is not as strong as to prevent even quite new firms from getting credit. Polish firms that have asked for credit are more likely to get it than the Czech or Hungarian firms [20].

5. Determinants of the demand for credit

One of the questions asked in our survey in early 1997 was the following: «Do you intend to get a loan in near future?» 44 per cent of firms answered «yes». We try to determine what explains the fact that firms wish to ask for credit.

The first explanatory variable could be profitability. In the absence of informational asymmetries, we expect the demand for credit to be positively correlated with profitability, considered as a proxy for liquidity. Since debt is more tax

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17 In our sample 84 per cent of firms which have asked for credit, got it.

18 The profitability variable is a dummy. For firms that got credit it equals one if they were profitable at the time of obtaining their first credit, and zero otherwise. For firms that did not receive credit, it equals one if they were profitable at the beginning of their existence and zero otherwise.

19 This confirms the results of Pinto and van Wijnbergen (1995): using balance sheet and survey data from Polish state-owned enterprises they find that the negative correlation between bank credit and profit breaks down, and becomes positive, after 1992. In contrast, Perotti and Carare (1996) found that in Romania during 1991-94, credit allocation was negatively correlated with profitability.

20 It has been suggested that a possible explanation for this fact may be that a large number of new banks were created in Poland in early 1990 which could have favoured the supply of credit to *de novo* private firms. However, it is only until 1992 that Poland has this advantage in per capita terms (see Table A5).

efficient, more liquid firms, which are able to obtain it will wish to do so. Also, the probability of bankruptcy is lower in the case of more liquid firms. However, in the case of adverse selection the correlation may be negative as only bad borrowers with low cash flow would be willing to take credit.

The intention to obtain credit in the future can also depend upon the firms experience: it can be positively linked to the fact that the firm has obtained credit in the past. In the context of transition, costs of seeking credit for the first time (in terms of preparing business plans, documentation, learning the potential legal pitfalls, etc.) may be quite high. If the firm has already succeeded in getting credit and absorbed some of these fixed costs, it may be more likely to ask for credit again in the future. We also include a dummy representing the desire to expand production (a proxy for investment needs) and country and sectoral dummies.

The results of estimations are presented in Table 4. The results in column (1) and (2) differ by the use of two different forms of the profitability variable. In (1) we use a dummy variable for firms that were profitable in 1995. In (2) we replace it with a dummy variable for firms whose profitability decreased between the first year of their existence and 1995. In (1) profitability turns out to be negative but insignificant as a predictor of the desire to seek credit in the future. In (2) we obtain the result that firms whose profitability decreased are more likely to ask for credit. The coefficient is significant at 10 per cent. This result might be interpreted as a symptom of adverse self-selection: the firms that have succeeded in improving their profitability in the past (or in keeping it constant), are apparently less likely to ask for credit in the future.

The coefficient of the dummy for firms that have got credit in the past is positive and strongly significant: the demand for credit in the future appears to be significantly increased if a firm has already got credit in the past. Beyond the fact that some fixed costs of getting credit have already been absorbed, as we have mentioned, it may also reflect a changed assessment by the borrower of the likelihood of success in obtaining credit, once the first bank credit has been obtained.

6. Conclusions

The results of our survey show that imperfections in capital markets in Central European economies do not seem to actually inhibit the growth of new private firms. Credit markets not only exist for *de novo* private firms in the three Central European transition economies studied, but they provide quite a large amount of financing and do so from a remarkably early stage of the existence of firms (in all three countries but particularly in the Czech Republic).

Financial intermediation works reasonably well as far as *de novo* private firms are concerned: loss-making *de novo* firms have a lower probability of getting credit than profitable ones. Banks protect themselves against the risk of a deteriorating pool of borrowers by requiring collateral for their loans.

We do not find convincing evidence concerning the existence of adverse selection. Profitable firms are not ready to pay higher interest rates than loss-making firms. Loss-making firms in 1995 are not more likely to ask for credit in the future than profitable firms; however firms whose profitability decreased in recent years are more likely to ask for credit than firms whose profitability did not decrease.

On balance, the banking system in the three Central European countries is operating far better (at least as regards *de novo* private firms) than one might have expected after only six or seven years of operation. Moreover, where it is not operating perfectly well - as indicated by some evidence of adverse self-selection - this does not seem to actually inhibit the growth of new private firms.

A possible interpretation of our results is that the reform and the reorganisation of the banking sector contributed to the reorientation of bank credit to the new private sector. This, in turn, supported the adjustment and the recovery of the economy.

Table 1: Availability of bank credit

Number of years after establishment that the firm obtained first bank loan	0	1	2	3	4	5	6	Total
Czech Republic	9	9	6	2	0	0	1	27
Hungary	3	6	5	4	3	0	2	23
Poland	8	7	12	4	7	7	0	45
Total	20	22	23	10	10	7	3	95

Notes: Number in cells represent number of firms that obtained bank credit after 0,1,...6 years after establishment. Only 95 firms (out of 137, which got credit) provided information about the date of credit.

Source: Reponses to questions in survey.

Table 2: Investment equation

Endogenous variable: log (investment/assets)

Variable	(1) all firms	(2) firms that got credit	(3) firms that did not get credit	(4) firms that did not ask for credit	(5) firms that got credit
Employment growth	0.552***	0.596**	0.427	0.329	-0.053
	(0.181)	(0.240)	(0.267)	(0.252)	(0.171)
Profitability	0.846**	1.189**	0.803*	0.811*	0.860*
	(0.374)	(0.611)	(0.439)	(0.414)	(0.479)
Age	0.066	-0.235	1.000**	0.813**	-0.037
	(0.236)	(0.307)	(0.402)	(0.361)	(0.277)
Czech Republic	1.725***	1.326***	2.956***	3.137***	0.239
	(0.390)	(0.508)	(0.595)	(0.612)	(0.373)
Hungary	0.495	0.083	1.199**	1.998***	-0.039
	(0.377)	(0.578)	(0.498)	(0.477)	(0.395)
Loan/assets	-	-	-	-	0.916***
					(0.084)
Constant	-0.916	0.076	-4.839***	-4.913***	0.160
	(0.837)	(1.028)	(1.507)	(1.363)	(0.839)
Number of observations	135	80	55	45	54
Adjusted R2	0.201	0.197	0.416	0.486	0.755

Notes: Age and employment growth are measured in logarithms. Profitability equals one if firm is profitable in 1994, zero otherwise. Standard errors in parentheses; ***: significant at 1 % level; **: significant at 5 % level; *: significant at 10 % level. Sectoral dummies were insignificant and we eliminated them from the regression.

Table 3: Determinants of the supply of credit (logit ML estimation)

Value of assets	0.816***	0.791***
	(0239)	(0.231)
Employment growth	0.437	0.376
	(0.345)	(0.329)
Profitability	1.259*	1.100*
	(0.666)	(0.612)
Age	-0.242	-
	(0.382)	
Czech Republic	-1.376*	-1.360*
	(0.822)	(0.815)
Hungary	-1.867*	-1.796*
	(0.965)	(0.949)
Sectoral dummies	yes	yes
Constant	0.480	-0.192
	(1.498))	(1.050)
Number of observations	134	134
Log Likelihood	-36.01	-36.22
Pseudo R^2	0.342	0.338
% correct	85.07	85.82

Notes: Endogenous variable equals one if the firm that has asked for credit got it, zero otherwise. Value of assets and employment growth are measured in logarithms. Profitability is a dummy variable defined as follows: for firms that have got credit it equals one if firms were profitable at the time of obtaining their first credit and zero otherwise; for firms that did not receive credit, it equals one if they were profitable at the beginning of their existence and zero otherwise. Standard errors in parentheses; ***: significant at 1 % level; **: significant at 5 % level; *: significant at 10 % level;

Table 4: Determinants of the demand for credit (logit ML estimation)

Variable	(1)	(2)
Profitability	-0.262 (a)	0.740* (b)
	(0.296)	(0.401)
Got credit in the past	1.312***	1.365***
(dummy)	(0.273)	(0.276)
Want to expand production	1.355***	1.351***
(dummy)	(0.547)	(0.549)
Sectoral dummies	Yes	Yes
Czech Republic	0.649**	0.694**
	(0.330)	(0.332)
Hungary	-0.090	-0.064
	(0.331)	(0.334)
Constant	-2.823***	-3.125***
	(0.722)	(0.689)
Number of observations	280	281
Log Likelihood	-168.97	-167.79
Pseudo R^2	0.121	0.130
% correct	68.21	68.33

Notes: (a) dummy for profitable firms in 1995 ; (b) dummy for firms whose profitability decreased between the first year of their existence and 1995.
Standard errors in parentheses; ***: significant at 1 % level; **: significant at 5 % level; *: significant at 10 % level.

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Appendix

Table A1: Sources of investment finance in firms which received credit (in per cent)

	Czech Republic	Hungary	Poland
Own capital and retained earnings	23.8	31.4	41.3
Bank credit	36.0	18.0	19.8
Trade credit	1.7	4.2	7.0
Leasing	3.4	5.3	10.3
Others	35.1	41.1	21.6

Source: Own calculations based on answers to survey questions.

Table A2: Sources of finance for working capital in firms which received credit (in per cent)

	Czech Republic	Hungary	Poland
Own capital and retained earnings	49.3	69.9	49.7
Bank credit	37.1	9.5	14.9
Trade credit	6.0	15.5	23.7
Others	7.6	5.1	11.7

Source: Own calculations based on answers to survey questions.

Table A3: Sources of initial capital in firms which received credit (in per cent)

	Czech Republic	Hungary	Poland
Own capital and retained earnings	53.7	84.8	79.8
Bank credit	20.7	4.2	4.4
Others	25.6	11.0	15.8

Source: Own calculations based on answers to survey questions.

Table A4: Ratio of credit to the private sector to GDP (in per cent)

	Czech Republic	Hungary	Poland
1993	51	28	12
1994	60	26	12
1995	60	23	13
1996	57	22	16
1997	68	24	18

Source: EBRD *Transition Report*, 1998

Table A5: Number of commercial banks

	Czech Republic	Hungary	Poland
1988	-	16	6
1990	21	23	75
1992	45	30	87
1993	57	37	95
1994	58	37	85
1995	55	35	75

Source: Anderson and Kegels (1998)