



Credit Allocation and Farm Structures in the Czech Republic, 1993–1997

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In an analysis of primary survey data collected by the author, de novo family farms in the Czech Republic are shown to have had more limited receipt of credit during 1993–1997 than successor organisations to communist-era farms, which are corporate farms. Criteria for credit allocation are investigated for both farm types. It appears that there is a link between farm profitability and obtaining credit for corporate farms, but not for family farms. An explanation for this finding is suggested, taking into account the inadequacy of conventional credit rating instrument in the transition setting and the informational advantage of corporate farms vis-à-vis family farms. Survey findings are in line with some of the implications of this account.

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INTRODUCTION

During the reforms in Central Europe, the emergence of market-oriented family farms, replacing communist-type wage-labour farms, has been limited compared to initial expectations. Although the early view was that ‘privatization in ... agriculture mainly concerns the breaking up of large units...’ (World Bank, 1995, p. 2), as early as in 1994 it could be noted that ‘already now it is clear that the process of farm restructuring ... is taking a course which appears to be different from the original expectations of many Western European observers. ... It is remarkable that farm enterprises ... choose to reorganize as whole entities, without dismantling the collective structure’ (Csaki and Lerman, 1994, pp. 566, 573). In all Central and Eastern European countries except Albania, still a small share of agricultural land is



worked by family farms. This share is 11% in Slovakia, 38% in the Czech Republic, 52% in Bulgaria, 54% in Hungary, 63% in Estonia, 67% in Romania and Lithuania, and 95% in Latvia (Lerman *et al.*, 2002).¹ In the (other)² countries of the former Soviet Union, market-oriented family farming is typically even more marginal (see, for instance, Prosterman *et al.* (1998) and OECD (1998) for figures on Russia).

Various reasons for this development have been suggested (Sarris *et al.*, 1999; Mathijs *et al.*, 1999; Bezemer, 2002b). Oft-mentioned is the lack of functioning credit markets, which is a problem particularly in the agricultural sectors of transition economies (for a detailed discussion of the reasons, see Bezemer, 2002a). *De novo* and relatively small enterprises, such as most family farms are, are thought to be typically more sensitive to this than established farm structures. This link between the limited role of commercial family farming and hampering credit markets has been suggested in several empirical studies (Wolz, 1996; Swinnen and Gow, 1999; Davis *et al.*, 1998; Shrieder and Heidhues, 1998; Pederson and Khitarishvili, 1997). More limited credit allocation may be one reason for the limited importance of individual farms in the Czech Republic and elsewhere in the economies in transition. A level playing field in this and other areas of farm operations would facilitate competition between different organisational alternatives in agricultural production, which, in turn, might lead to further improvements in allocative efficiency (as suggested by eg Mathijs and Swinnen, 2001). This level playing field was, and is, the official aim of structural policies in most transition economies – see OECD (1995, p. 90) and Ratinger and Rabinowicz (1997, p. 96) for the Czech case. Reality, however, may be different. In this paper, the relation between credit allocation and farm structures is investigated on the basis of primary farm-level data for the case of the Czech Republic in the mid-1990s.

BACKGROUND INFORMATION AND DATA

The organisational alternatives in farming in the Czech Republic, as in most of Central European agriculture, are what have been called ‘corporate’ farms

¹ Figures are percentages of Total agricultural land. The year of measurement varies between 1996 and 1998. Note that Poland and former Yugoslavia, while geographically in the Central and Eastern European area, are not relevant here. In both countries (and successor states), family farms were dominant throughout the communist era, and de-collectivisation in the sense defined was not an issue in the transformation.

² Owing to discounting over time there will actually be different weights b_i and f_i attached to profitability in different years, such that $b_i > b_{i-1}$ and $f_i > f_{i+1}$. Including this in the formula would unnecessarily complicate it. Note also that current profitability is, arbitrarily, included in the future-profitability argument.



and 'individual' farms (Sarris *et al.* 1999, p. 310). Corporate farms are successor organisations to collective or state farms, and in the Czech Republic they include cooperative farms (*zemedelská druzstva*), joint stock businesses (*akciové společnosti*), and limited liability companies (*společnosti s.r.o.*). They are defined by the corporate separation between farm ownership, control over the production process, and implementation of production tasks. The typical governance structure of Czech corporate farms consists of several hundreds of owners, up to 10 managers, some administrative and technical personnel, and between some tens and a few hundred workers. Czech cooperative farms are usually larger in terms of acreage and workers, and less profitable than are joint stock or limited liability companies (Csaki *et al.*, 1999, p. 36).

Individually operated, or, for short, individual farms, are owned, managed, and operated by a limited number of people, usually united in one (extended) household. Their legal form is normally that of a 'physical entity', which is usually the 'physical person' (as distinct from a corporate structure) of the entrepreneur. The individual farm is sometimes the successor of a state farm, but typically newly founded as a production entity during the transformation, its owners working land that was acquired through restitution and lease. Wage labour is used on a very limited, often part-time or temporary basis, if at all. The production focus is on crop growing, in which there is considerable product specialisation, while activities in animal husbandry are limited and non-farm production is usually absent. Also, individual farmers are more often supplemental-income farmers.

The limited importance of individual farms for market-oriented agricultural production is due not so much to their number as to their size. In the Czech Republic in 1998, the survey year, there were 2,208 joint stock/limited liability farms and 1,256 cooperative farms. In comparison, there were 92,845 person registered as owning land and with the legal form of 'physical person' (*podniky fyzických osob*) in the Czech 'Register of Economic Subjects' in 1998. However, 'only' 22,971 persons were registered in another record, the 'Agricultural Register', as producing food (ie for the market). The rest of the landowners plausibly either worked their land as gardeners, largely for home consumption, or rented it out to other people or to a farm. These 22,971 individual farmers had an average farm size of 36 ha, but over half of them worked less than 10 ha and only 6% used over a hundred hectares. Between them they worked 24% of agricultural land. The bulk of the remaining land was occupied by the 3,464 corporate farms, all working over a 100 ha, except for a minority of about 10% (Ministry, 1999; Csaki *et al.*, 1999, p. 29). In short, individual farms were, and are, numerous, but very small, and



therefore of limited importance for market-oriented farming compared to corporate farm structures.

This is the setting in which two surveys were implemented in 1998–1999. The survey questionnaires were developed on the basis of fieldwork in the Czech Republic during 1997 and 1998 (see Bezemer (1999) for findings). One survey addressed members of the Czech Association of Private Farmers (SSZ), that is, owners/operators of individual farms. This sample frame, implying member of the SSZ, ensured that the sample was not saturated with extremely small farm structures (which are often actually gardens and hobby farms). Still, in view of the sectoral structure, a distinction was made in the sample between ‘professional’ and ‘other’ individual farmers. ‘Professional’ individual farms were defined as farms where the owner both derives more than three-quarters of income from farming and devotes over 40 h weekly to it.

A parallel survey targeted management of corporate farms, and was conducted in cooperation with the Czech-Moravian Union of Agricultural Cooperatives (representing cooperative farms and farm companies with limited liability or joint-stock structure). Data on 193 individual farms (70 ‘professional’ and 123 ‘other’) and 69 corporate farms (29 farming companies and 40 cooperatives) were collected.

Data collected in the survey included: information on developments in farm size, structure, and governance during transition; experiences in the de-collectivisation and restitution process; the nature of farm operations on input and output markets; farm profitability; and receiving credit and subsidies, loan allocation criteria, and loan maturity and collateral. Most survey questions were identical for individual and corporate farms; some were specific to farm structure. A number of questions were retrospective, referring to the entire transition period to date (1990–1997) in connection to changes in farms structures, and to the last 5 years (1993–1997) in connection to credit market experiences.

During that period, Czech credit markets in general were characterised by three main problems. First, the bad debt problem had never been solved; debts accumulated during the central planning era, or shortly thereafter, of which repayment was long overdue, had not been systematically restructured. Only in 2000 did the problem begin to be addressed. By then, nonperforming loans accounted for 26% of GDP. Second, liquidation procedures in particular and court proceedings in general were very slow, and creditors could not effectively move against defaulting debtors. Third, capital market regulation was deficient, and was not improved until 1998 (World Bank, 2000, pp. 4, 6, 37, 67). Each of these problems originated in the former economic system (Bezemer, 2002a).



In the segment of the Czech credit market servicing agriculture, there were four types of participants during the years of observation: individual farms, corporate farms, banks, and the state, represented by a credit support fund. A relatively large number (over 40) of the Czech commercial banks operated in agriculture, the most important being the majority state owned *Komerční Banka* (KB). Through this bank went 38.5% of the loan guarantees and 34% of interest rate subsidies in this period. Second in importance was *Agrobanka*, a former state bank branch, handling only 15.6% of guaranteed loans and no subsidies. *Agrobanka*, although originally designated to become the main agricultural bank of the country, was planning to withdraw entirely from agriculture at the moment of surveying because of financial difficulties and a foreign take-over. The continuing bad debt problem was reflected in the fact that total outstanding credit to agriculture in 1998 (KCS 32,903 million, or 1.8% of Czech GDP) was for a large part (KCs 15,373 million) long-term (Csaki *et al.*, 1999; Pederson and Khitarishvili, 1997, p. 10). In 1998, the exchange rate was 32 Czech crowns to the US dollar (EBRD, 2001).

Subsidised credit handled by these banks originated with the Support and Guarantee Fund for Farmers and Forestry (PGRLF if abbreviated from the Czech), and accounted for most credit extended to agriculture (58% on 30 June 1998). Support took the form of either loan guarantees or subsidies on interest, reducing, for instance, the rate from the commercial 15% to 2.5% in 1996 (Agra Europe, 1996, p. 22). Csaki *et al.* (1999, p. 36) found that PGRLF-supported loans were more often allocated to cooperative farms, and were used to cross-subsidise the activities of parallel limited liability farms.

Credit Allocation Over Farm Structures

The survey data offer evidence for the notion, mentioned in the Introduction and in the descriptive literature, that experiences in the credit market of individual farms and corporate farms have differed during transition. Respondents were asked to evaluate the importance of various barriers in operating their businesses, among them 'obtaining credit from a bank'. A ranking from 1 (very problematic) to 5 (no problem) produced an average of 1.9 among the 118 responding individual farmers (both professional and 'other'). For 38 cooperative farm managers it was 3.1, and for 28 farm company representatives it was 2.5. The differences in means between the individual and corporate farm types are statistically significant ($\alpha = 5\%$).

Farm managers and operators also reported the amount of credit obtained in 1997 as a percentage of total financial resources in that year. Corporate and cooperative farms reported 20% ($n = 26$) and 15% ($n = 35$). Professional and 'other' individual farms reported 4% ($n = 93$) and 8% ($n = 40$). It should be noted that these averages result from a very different distribution. No credit at



all in 1997 (ie 0%) was reported by 23% and 20% of the corporate and cooperative farms, but by 75% and 73% of professional and 'other' individual farms.

Other data suggest that this was true not only for 1997. Respondents were also asked if they took up credit in each of the years 1993–1997. The average number of years in which farmers did this was 0.7 for professional and of 0.3 for 'other' individual farms ($n = 112$ and 46, respectively). The number was significantly ($\alpha = 1\%$) higher for corporate farms, which scored an average of 3.0 ($n = 66$), with negligible difference in average score between cooperative and other corporate farms.

This difference may have been because of fewer loan requests or to more rejections in the group of individual farmers. Table 1 shows survey data on loan applications and rejections, suggesting that both factors played a role.

The figures show that almost all corporate farm managers applied for credit, and about half of them obtained it. The application rate in professional individual farms is about one-half that in corporate farms. Over two-thirds of those individual farmers who applied, reported a rejection of their request. The frequency of applications was still lower in 'other' individual farms, and here four-fifths had an application rejected. It should be noted that lower application rates may reflect lower demand, but may also indicate farmers' anticipation of a higher rejection probability. The data do not allow us to distinguish between these motives. One conclusion from the table is that individual farmers' lower participation rate in the credit system was at least partly a supply side phenomenon.

Allocation Criteria

Respondents who had experienced a rejection of their loan request were asked to cite the reason that the bank gave, from an array of possible grounds

Table 1: Individual farmers applied less often for loans and were more often rejected

Farm type	Did you apply for a loan in 1993–1997?			Did you have one or more loan requests rejected during 1993–1997?		
	No	Yes	Total	No	Yes	Total
	Counts (percentages in parentheses)					
Corporate	1 (1)	27 (17)	28 (11)	12 (21)	15 (15)	27 (17)
Cooperative	3 (3)	37 (24)	40 (15)	19 (24)	17 (17)	36 (23)
Professional individual	58 (56)	64 (41)	122 (47)	20 (36)	44 (44)	64 (41)
'Other' individual	41 (40)	28 (18)	69 (27)	5 (9)	23 (23)	28 (18)
Total	103 (100)	156 (100)	259 (100)	56 (100)	99 (100)	155 (100)

Source: Survey findings



suggested by the theoretical and empirical literature, as well as by interview experiences. Several options could be selected. The original question, the answer options, and the findings are reported in Table 2.

Almost all (97 out of 99) who experienced a rejection responded to this question. As to the overall importance of the various reasons, insufficient profitability and overly high risk are mentioned most frequently. This is true for both farm types, but corporate farm managers report this significantly more often than individual farmers ($\alpha = 5\%$). Moreover, these are also practically the only reasons they give.

For individual farmers, three other reasons are mentioned with some frequency: inadequate security of some sort (either collateral or third-party guarantees), the absence of personal relations with the bank management, and the answer 'because we work in agriculture'. It appears sensible to perceive a lack of specialist agricultural banks, well-known from other descriptive literature (eg Pederson and Khitarishvili, 1997), behind the reasons 'because we work in agriculture' and 'because of bank incompetence' (and, to some extent, 'small farm size'). Again, this barrier to credit is more relevant for individual than traditional farmers.

Also the role of collateral was investigated in more detail. Collateral has a central function in credit allocation in market economies. It has often been noted (eg Davis *et al.*, 1998, p. 2; OECD, 2001, pp. 125–135) that in credit markets for agriculture in the transition economies, there are typically serious problems connected with the use of collateral. These originate with insufficiently defined or overly complex owner relations and underdeveloped markets in collateral such as farmland and buildings. Respondents reported the type of collateral accepted by the bank in their latest loan transaction. They could check several options. Categories are listed, in order of descending overall frequency, in Table 3.

Overall, there is considerable diversity in the use of collateral, with differences over farm types. Buildings and a private, third-party guarantee (eg by a processing firm) rank highest overall; but that ranking mainly results from high frequencies in corporate farms. This is evidence that the traditionally strong links between farms and downstream industries also serve to improve the access to credit of this farm type, as also noted in other studies (eg OECD, 2001, p. 196–206).

The role of the PGRLF appears to have been to give access to credit for individual farmers who would otherwise have little alternative security to offer (buildings apart). Moveable assets and farm land were of comparable importance in this sample. The diversity in collateral used, which is particularly large in the individual farm sample, suggests that no single collateral type is seen as fully adequate. Reasons for this may include

Table 2: Profitability and risk were the main reasons for loan rejection

Did the bank give a reason for the rejection?	Farm type (no. of respondents)				
	Corporate (13)	Cooperative (16)	Professional individual (46)	Other individual (23)	All (97)
<input type="checkbox"/> No, they gave no reason. Please indicate below what you think the reason was.					
<input type="checkbox"/> Yes, they gave the following reason or reasons (you can check several boxes):					
	No. of responses (percentages in parentheses)				
Profitability was not high enough	10 (50)	11 (58)	21 (36)	9 (35)	51 (41)
Risk was too high	4 (20)	8 (42)	12 (21)	3 (12)	27 (22)
There was no adequate collateral	2 (10)	0 (0)	3 (5)	1 (4)	6 (5)
Book-keeping information was not adequate	1 (5)	0 (0)	1 (2)	1 (4)	3 (2)
Nobody guaranteed my loan	1 (5)	0 (0)	5 (9)	3 (12)	9 (7)
I did not know the management personally	0 (0)	0 (0)	9 (16)	2 (8)	11 (9)
Other (not specified in questionnaire)					
My farm is too small	0 (0)	0 (0)	2 (3)	4 (15)	6 (5)
The bank was incompetent	2 (10)	0 (0)	0 (0)	0 (0)	2 (2)
We work in agriculture	0 (0)	0 (0)	5 (9)	3 (8)	8 (7)
Total number of responses in all answer categories	20 (100)	19 (100)	58 (100)	26 (100)	123 (100)

Note: Since respondents could select several reasons, the total number of responses in all answer categories is larger than the number of respondents.

Source: Survey findings



Table 3: Use of different types of collateral differs over farm types

Collateral accepted in the last loan transaction	Farm type (no. of respondents)				
	Corporate (26) No. of responses	Cooperative (36) (percentages in parentheses)	Professional individual (49) (percentages in parentheses)	Other individual (18)	Total (129)
Buildings	21 (40)	30 (47)	33 (37)	11 (44)	95 (41)
Private third-party guarantee	19 (36)	23 (36)	0 (0)	3 (12)	45 (19)
Machinery	8 (15)	6 (9)	15 (17)	2 (8)	31 (13)
PGRLF guarantee	1 (2)	3 (5)	19 (21)	4 (16)	27 (12)
Farm land	1 (2)	0 (0)	11 (12)	4 (16)	16 (7)
Cash	3 (6)	2 (3)	7 (8)	0 (0)	12 (5)
Home	0 (0)	0 (0)	2 (2)	1 (4)	3 (1)
Future revenues	0 (0)	0 (0)	2 (2)	0 (0)	2 (1)
Total number of responses in all answer categories	33	64	89	25	232

Note: Since respondents could select several reasons, the total number of responses in all answer categories is larger than the number of respondents.

Source: Survey findings

structural factors in the agricultural sector (eg the land market) and a learning process in the banks involved.

One oft-mentioned problem with transitional credit markets (from the point of view of the borrower) is the short maturity of loans extended. This is usually attributed to the great uncertainty on firm prospects in the medium and longer term and to the lack of adequate collateral. This problem did not appear to be dramatic in the sample, where the single most frequent maturity in all farm types was the medium term (1–4 years). This term does not allow farms to undertake substantial investments in technology that pay off only after a longer period, but neither does it preclude any investments beyond operational demands. Perhaps also because of the small number of observations, there are no clear differences between the two alternative farm types, nor within those groups, in the distribution over loan terms.

Finally, an exploration of the importance of profitability as a loan allocation criterion is undertaken. As noted, profitability was the most important self-reported reason for loan rejection. Another reason to pursue this relation is that a basic function ascribed to credit markets is to cause financial resources to flow to the most profitable firms in a given market (eg Rother, 1999, p. 1). Credit allocation in line with some profitability measure would imply that there is a relation, for a given farm, between profitability on the one hand and access to or receipt of credit on the other.



Farm profitability was measured for each farm in the survey as the number of years out of the last five (1993–1997) in which profit was recorded. As to credit, in the survey both measures for access to and receipt of credit (already discussed above) were registered. Respondents reported the perceived difficulty in accessing credit by scoring a scaled variable, from 1 (accessing credit is very problematic) to 5 (accessing credit is no problem). They also reported the number of years in which they took up a loan, out of the last 5 years (1993–1997).

Was there a relation between farm profit and access to credit, or between farm profit and receipt of credit, so measured? Computations of bivariate Pearson coefficient between profit and either credit measures are presented in Table 4. Intuitively, one would expect positive and significant values for both correlation coefficients, and for each type of farm. The figures suggest that this is indeed the case for corporate farms, and more strongly so for cooperative than for other corporate farms. For individual farms, however, there is no apparent relation between either pair of variables. Despite their larger number, positive correlation coefficients that are statistically significant are not observable.

Allocation by Association?

The exploration of allocation criteria in the preceding section suggests two questions to be further investigated. Why do corporate farms more often obtain credit? And if the credit allocation process within the group of corporate farms reflects the pattern of farm profitability, why is this not the case in allocation to individual farms?

In addressing these questions, it may be suggested that individual farms are less profitable than corporate farms; or that differences in profitability within the group of individual farms are too small to be perceivable, as opposed to differences between corporate farms. Table 5 shows both explanations to be misplaced. This table presents the distribution of all farms over categories of profitability. Differences in profitability over categories, if perceived by lenders, may cause them to limit access to credit for certain farm types. The figures show that these differences could not be observed in the survey. Assuming lenders have the same perception, the *ex ante* perceived profitability of farm types cannot have been a reason for the more limited receipt of credit by individual farm operators. For no type of farm is the average number of profitable years significantly different, in the conventional statistical sense, from the grand mean. Only the difference in averages of the ‘professional’ and ‘other’ individual farms is statistically significant, but not any difference between corporate and individual farms. Nor are there clear and explanatory differences between both farm types in

Table 4: Profitability is related to both credit obtained and to access to credit for corporate, but not for individual farms

	Bivariate Pearson correlation coefficients, by farm type (no. of respondents)					
	Cooperative (40)	Other corporate (29)	Professional individual (123)	Other individual (70)	All corporate (69)	All individual (193)
	Number of years in which profit registered in 1993–1997					
Access to credit, 1–5 scale (1=problematic, 5=no problem)	0.344*	0.259	0.137	0.182	0.278**	0.155
Number of years in which loan taken up in 1993–1997	0.415*	0.211	–0.018	0.024	0.282**	0.043

*Correlation coefficient is statistically significant for $P \leq 10\%$.

**Correlation coefficient is statistically significant for $P \leq 5\%$.

Source Survey findings





Table 5: Differences in profitability over farm types are small

No. of profitable years	Farm type				
	Other individual	Professional individual	Corporate	Cooperative	All types
	No. of respondents (percentages in parentheses)				
0	18 (36)	25 (21)	4 (16)	9 (24)	56 (24)
1	9 (18)	15 (13)	5 (20)	4 (11)	33 (14)
2	5 (10)	30 (26)	7 (28)	8 (22)	50 (22)
3	10 (20)	20 (17)	3 (12)	7 (19)	40 (17)
4	2 (4)	12 (10)	1 (4)	6 (16)	21 (9)
5	6 (12)	15 (13)	5 (20)	3 (8)	29 (13)
All categories	50 (100)	117 (100)	25 (100)	37 (100)	229 (100)
	Average/respondent*				
	1.7	2.2	2.3	2.2	2.1

*Differences between farm types in the average number of profitable years are not statistically significant at the 5% level, except for the difference between 'professional' and 'other' individual farms.

Source: Survey findings

the distributions of respondents over the six 'number of profitable years' categories. Only the 'other individual' farms are clearly more concentrated in the '0' and the '1 profitable year' categories than any of the other farm types. If anything, differences in profitability are easier to perceive there than in the group of corporate farms.

There is another explanation for both the larger allocation to corporate farms and the stronger correlation with profitability in that group. In most thinking on loan allocation decisions, the information available to the bank management on the applicant's characteristics is central. Taking, for instance, the criterion of farm profitability, it is *perceived* rather than actual profitability that directs the credit allocation decision. Bank management may obtain such information by requiring the loan applicant to prove sufficient (past or expected) farm or project profitability, or by using security instruments (such as collateral or accounting requirement) as tools to facilitate monitoring and ensure against default.

These methods require that accounting practices and standards are sufficiently developed, that there exists collateral with sufficient resale value, and that the use of these instruments can be bindingly stipulated in a contract. These conditions obviously are not always fulfilled, particularly so in the transition setting. As is noted in the financial markets literature (eg Barry *et al.*, 1995), relation-driven transacting, facilitating the transmission of information on farm performance, without exclusive reliance on formal contracts, is then an alternative way to obtain the information needed for an informed risk and profitability assessment.



A more general way to put this, which connects to recent theoretical work on economic systems, is to say that local economic networks are important for allocation decisions. Local economic networks consist of relations between economic agents – relations of a business nature, in civic society networks, through kinship, etc. Based on the trust that develops in such networks (Williamson, 1985; Fukuyama, 1995), information is more easily exchanged, because ‘[t]hrough the economic and social relation in the network, diverse information becomes less expensive to obtain’ (Malecki, 2000). Through this information exchange, network relation facilitate coordinated action (Putnam *et al.*, 1993). Relations are partly (never fully) replaceable by explicit contracts, but this is costlier (Arrow, 1972). Also, as was noted, effective replacement is not always possible, particularly in an institutionally deficient environment, such as a post-communist economy.

This theoretical perspective would be appropriate if investments and allocation of resources (credit, subsidies, inputs) occur in a setting where network relations, more than anything else, provide a basis for credible information transmission. This information, in turn, is the basis for allocation and investment decisions. In this view, those making the investment decision, or those allocating resources (such as bank management), will have two considerations in making a decision. First, is the applicant able to provide credibly the relevant information on returns to investment and on default risk, that is, is he/she part of the network? If not, a positive allocation decision is probably prohibited by the high uncertainty on key decision parameters such as default risk and return to investment. Second, if the relevant information can be credibly provided, a subsequent consideration is that information itself – does it give the bank management reason to actually allocate credit? In short, those within a network will more often obtain resources than do the outsiders; and if they do, resource allocation will be more in line with some criterion (such as profitability) on which information is now available.

Applying this perspective to this study is warranted if (1) network-based allocation of credit is important in Czech agriculture, and (2) corporate farm managers have better relations with bank management than individual farm operators. As to the first point, Grabher and Stark (1997) have argued on the relevance of network-based transacting for post-communism in general, where adequate alternative coordination mechanisms are often absent or underdeveloped. Specifically, Koford and Tschoegl (1999), interviewing Bulgarian bankers in order to identify their loan allocation criteria, specifically report ‘significant difficulties in accumulating the information to evaluate borrowers’. One of their conclusions is that lending problems



could be mitigated by the operation of reputation, which is a substitute for personal relations in information transmission.

In addition, it should be noted that post-communist villages and rural areas are typically local, relatively closed economies with a few large economic agents – the local administration, a bank (branch), a corporate farm – or, occasionally, firm(s), as for instance in mining areas. Both features, that is, relative isolation and a limited number of economic agents, facilitate personalised, network-supported allocation and exchange rather than impersonal, pure-market transactions. This view of the local, rural economy is argued in more theoretical detail by the author in Bezemer (2002a, b). It appears sensible to apply the above theoretical view to the transition economies in general and to credit markets in the rural economy in transition countries in particular.

Q1

A second step in the application of this argument is to argue that individual farmers are outside such networks, whereas corporate farm managers are typically part of it. A general observation in support of this is that corporate farms have nearly always been in existence for decades, while individual farms were newly established after the reforms. Typically, also the management of the local branch of the agricultural bank was usually already in office before the reforms started. Indeed, previous qualitative fieldwork found that local bank management and farm management in Czech rural areas often have a long-standing relation (Bezemer, 1999).

Findings from the survey data indicate the relevance of this for loan allocation decisions. Those survey respondents who had experienced a loan application rejection were asked about perceived reasons for the rejection. None of the 29 corporate farm managers who responded to the suggestion that a lack of good personal relations was a reason for rejection of their loan application responded in the affirmative. Of the 63 respondents from individual farms, 11 agreed. It is interesting to note that among the answer options to this question were also ‘insufficient profitability’ and ‘too high risk’. Corporate farm managers most frequently reported these two factors as reasons for loan application rejection (21 and 12 times respectively, $n = 29$), while they were relatively less important in the individual-farms group (30 and 15, respectively, $n = 69$). If individual farms can provide less, or less adequate, information on profit and risk, one would indeed expect that this will less often be identified as a factor in loan decisions.

Additional evidence is contained in information from 132 individual farmers reporting their professional background. Former managers of corporate farms ($n = 39$) reported a higher average number of years in which credit was taken up in 1993–1997 than did other individual farmers. This was 1.0, which compares to 0.3 for former workers in agriculture ($n = 45$), 0.5 for



former workers in other sectors ($n = 35$), and 0.7 for former managers in other sectors. In comparison, the average for present managers of corporate farms was 3.0. This supports the idea that credit transactions are partly relation-driven, given the fact that managers of corporate farms who start their own individual farms often do so in their own village or area, and can use the existing local relation in their new business context to credibly signal farm performance.

A qualification of this evidence is that it can also be interpreted as signifying differences in personal capabilities rather than relations. Also, individual farmers who used to be managers of corporate farms are still much less likely to receive credit than those who remained in the corporate farm. This suggests, unsurprisingly, that personal attributes (be they relations or capabilities) were not the only determinants.

It should be noted that the explanation suggested here is based on a view of the local economic system rather than on credit markets or the agricultural sector only. The systemic feature of this account can be exploited to further investigate its applicability using the survey data. In a local economic system, allocation of different resources (not just credit) occurs. Since similar allocation mechanisms can be expected to produce similar distributions, allocation predicated on personal relations *as a systemic feature* can be assumed to produce similar allocation patterns – even if the resources being allocated are not the same. With such *network-based* allocation, those within the network have better general access to resources of different types.

In our case, the survey data contain information on allocation of both subsidies and credit. If, as was argued, individual farmers are more often outside the local economic network, the implication would be that individual farmers would more often obtain neither credit nor subsidies, compared to corporate farm managers. Moreover, for the latter group the link between receiving credit and subsidies should be less clear. They are assumed to be better able to provide relevant information (in both credit and subsidy allocation processes), and it is the content of that information more than anything else that would control their success in obtaining both credit and subsidies. Since the criteria for allocating credit and subsidies may differ, the allocation pattern may accordingly be more different among corporate farm managers than among individual farmers.

Respondents' evaluation of the extent to which access to credit and subsidies was a barrier to operating their business successfully, ranked between 1 (very problematic) and 5 (no problem), was analysed. For individual farms, the scores on the problematic nature of access to credit and to subsidies are significantly ($\alpha = 1\%$) correlated; the value of the Pearson



correlation coefficient is 0.31. There is no significant correlation in the sample of corporate farms.

Furthermore, based on the information on receipt of credit and subsidies per year in 1993–1997, a variable was constructed that assumes value 1 if credit and subsidy, in a given year and for a given farm, are either both allocated or both not allocated (*simultaneous* allocation). For observations where only one type of funds is allocated but not the other, its value is zero (*non-simultaneous* allocation). A missing observation is registered if receipt of either or both was not reported in that year.

In a given subsample, the summation of values of this variable, divided by the total number of observations, would indicate the frequency of simultaneous allocation decisions. Table 6 presents these percentages for the four farm types and over the years 1993–1997.

The figures show that either type of individual farm experienced simultaneous (non-)allocation of credit and subsidies more often than either type of corporate farm, in line with the hypothesis that network participation was more determining in both allocation processes for individual farms. χ^2 tests showed that differences in means of the frequencies of simultaneous allocation of subsidy and credit were statistically significant in the comparisons between both types of individual farms with farm companies (= 1%) and, more weakly, cooperative farms (= 10%). The two types of corporate farms also differed significantly on average (= 1%), but this was not true for both types of individual farms.

Moreover, individual farms more often experience simultaneous *exclusion from*, rather than simultaneous *allocation of*, funds. In corporate farms, the frequencies of both coincidences are more similar (Table 7).

For each farm type in Table 7, the sum of top-left and bottom-right figures is the percentage of simultaneous loan/subsidy allocation decisions. The *distribution* of those decisions over the top-left (yes/yes) and bottom-right (no/no) quarters is an indication of the extent to which such ‘network-based’

Table 6: Allocation of credit and subsidies to individual farms (%) is often simultaneous

Year	1993	1994	1995	1996	1997
Farm type (no. of respondents) ^a					
Professional individual (97)	73	71	72	71	79
Other individual (39)	79	72	79	84	84
Corporate (22)	64	48	56	24	48
Cooperative (37)	51	54	58	54	67

^aIn each group, the number of cases where there are observations on both credit and subsidies (*n*) varies slightly over the years. Here the lowest number is given.

Source: Survey findings



Table 7: For individual farms, allocation simultaneity results mainly from exclusion

% of farms receiving credit, averaged over 1993–1997	% of farms receiving subsidies, averaged over 1993–1997			
	Type		Yes	no
	Individual	Yes	2	22
		No	3	73
	Corporate	Yes	22	8
		No	40	30

decisions favour fund allocation to that farm type. The figures show that simultaneous credit allocation decisions occur in 75 % of all observations. Nearly always, in 73 % of all observations, these simultaneous decisions are negative. For corporate farms, simultaneous decisions are both less frequent (52 % of all observations) and less often negative (30 % of all observations). Similarly, non-simultaneous credit decisions (25 % of all observations) are rarely negative for individual farms (3 % of all observations), while for corporate farms they are often negative (40 % out of 48 %). In the interest of concise presentation, the figures in Table 7 are averages over 1993–1997; however, separate calculations, not presented here, showed that these conclusions apply for each single year in the series.

Four tentative conclusions from this section would follow. First, network-based allocation of credit is plausibly relevant in transitional agriculture. Second, such allocation, as signified by simultaneous credit and subsidy allocation, appears more prevalent for individual farms than corporate farms, as was hypothesised. Third, such credit decisions are nearly always negative for individual farms. In the present perspective, this would be in line with the assumption that they generally fail to satisfy the first criterion for allocation, which is adequate information provision based on network participation. Fourth, for corporate farms, simultaneous credit allocation decisions are rather evenly distributed over the positive and negative outcomes. This supports the idea that other criteria, such as the outcome of profitability assessments, are more important in credit and subsidy allocation within this group, compared to individual farms.

SUMMARY AND CONCLUSIONS

In this study, the allocation of credit in the Czech Republic to farms of different governance structures in the 1993–1997 years was investigated on



the basis of primary survey data. Long-established, corporate farms appeared to have better access to credit than *de novo*, individual farms. Both the more frequent allocation to corporate farms and the distribution of loans within the individual farms group do not appear to be related to conventional loan allocation criteria or to the distribution of profitability over both farm types.

As an alternative explanation of the observed allocation patterns, it is suggested that in a situation of large uncertainty, and lacking conventional credit rating or security instruments, relation-driven transacting is important in the Czech credit market for agriculture. This helps bank management to reduce their uncertainty over the farm. This practice would indeed produce more credit allocation to the (longer established) corporate farms as well as a credit allocation pattern in line with profitability patterns observed in the survey. Observations of various survey data are in line with this account, although it should be noted that the empirical support for this explanation is indirect. This follows both from the systemic nature of the explanation and from limitations to the available data. Still, this account is offered as a suggestion for understanding the pattern of credit allocation in Czech agriculture.

The possible origins of the observed allocation pattern, which may restrict the scope for the development of farm efficiency, were explored analytically in this paper. It was shown how an institutionally defective environment may provide incentives for individually rational behaviour that produces an overall undesirable outcome. The analysis implies that a remedy to this outcome would primarily lie in the field of institutional development. This would include: better and more general accounting standards as well as training in this area, both for agricultural bank personnel and in farm operators; development of more adequate legislation, for example, on residual owner over collateral and on liquidation procedures; and better functioning courts. None of these points, which have a wider applicability than just Czech agriculture, is entirely original. The contribution of the present study is to once more point out their relevance in a concrete case, on the basis of firm-level data, and using a systemic perspective of the local economy.

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