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Chapter 8

Credit Markets for Post-Socialist Agriculture

8.1. Introduction

One of the bottlenecks of successful transformation in many sectors, and particularly the agricultural sector, in Central European post-socialist countries has been and continues to be the underdevelopment of the financial sector (Rother, 1999:3; World Bank, 1995; Woltz, 1996). Now that the phase of large, macroeconomic changes is followed by one of adjustment and consolidation in the microeconomic sphere, banks with their financial and governance potential could play a vital role in re-organising the agricultural sector towards a long-term viable structure. As a prelude to the analysis of Czech credit markets for agriculture, in this chapter an outline of the peculiar nature and special challenges of agricultural credit markets is given, complemented by an identification of the specifically post-socialist conditions that render the development of these markets particularly problematic in the transformation setting.

8.2. Credit Market Theory

Credit markets cannot usefully be analysed with the standard commodity market model because of information asymmetries and the incentive problems of adverse selection and moral hazard these induce. Although present on all markets, these circumstances are particularly relevant on capital markets, because every financial transaction involves an exchange of present certainty for a future promise. Micro-economic credit relations are therefore fruitfully studied as principal-agent relationships (Barry *et al.*, 1995:23).

8.2.1 Incentives and Information Problems

In this approach, loan contracts between the lender, as principal, and the borrower, as agent, must align the agent's incentives to the lender's goals. Contract clauses should respond to two lender

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concerns: (1) that the borrower is riskier than believed when the loan was originated, and (2) that the borrower takes on greater risks during the term of the loan than originally anticipated. The second concern is an 'adverse incentive' or 'hidden action' problem, while the first is an 'adverse selection' or 'hidden type' problem. Both are likely to be relevant since information on project risk and returns is asymmetrically distributed (Bester, 1985).

Lenders must set the terms of the contract so that they can obtain information on both types of risk with minimal monitoring costs. The most cost-efficient way to do that is providing borrowers incentives to monitor themselves and convey the appropriate signals to lenders. However, the borrower will try to shift monitoring costs partly back to the lender. Hence the contract decision for the lender is defined in the trade-off between, on the one hand, the costs of monitoring that eliminates information asymmetries and, on the other, the costs of borrowers' strategic behaviour based on persistent information asymmetries.

8.2.2 Contract Solutions

In the practice of loan contracts, monitoring is organised in various ways, both direct and indirect. The obligation of financial accounting and, notably, the use of short-term debt are among the direct signalling devices. Lenders may employ renewable short-term rather than long-term debt, forcing borrowers into a timely revelation of their risk exposure and containing the damage of default. In addition, such agreements also increase lenders' liquidity, and force the borrower to provide the lender with additional information, thus reducing asymmetric information problems. Borrowers, in turn, prefer longer-term debt: it increases their liquidity, leaves more of the information advantage intact, and increases project selection and management discretion. Moreover, short-term debt that is employed to fund a longer-term project, but the renewal of which is uncertain, is risky to the borrower.

A constraint on loan maturity is the durability of the collateral. If the asset used as collateral depreciates more rapidly than the value of outstanding debt, the borrower may default. If debt repayment is faster than collateral depreciation, the lender may try to sell the asset. A workable contract should stipulate that the value of debt outstanding and the value remaining in the project be roughly equal over time. This protects loan partners against opportunistic behaviour (Hart & Moore, 1994).

In addition to direct signalling devices, indirect signals of borrowers' creditworthiness include their performance record in the activities they want to fund, such as their experience and th-

use they make of progressive technical or managerial techniques. Such information allows for the identification of a (prospective) lender's risk level, which in turn facilitates differential loan pricing using risk-adjusted interest rates. This market segmentation practice precludes the adverse-selection problem of a single interest rate, where low-risk borrowers implicitly subsidise high-risk borrowers. In such a situation, 'bad' borrowers would over time drive out 'good' ones.

The lender can employ several additional instruments in order to cope with moral hazard: collateral requirements, loan documentation, requests of regular repayment of part of the principal, reporting requirements, performance standards, sales restrictions, constraints on additional borrowing, insurance requirements, default penalties, foreclosure conditions, and many other devices. A more general instrument is the market for financial information. Such markets typically accompany well-developed financial markets, and ensure that defaulting on loan repayments will result in non-renewal of loans by the original lender as well as by other financial intermediaries, because of the quick dissemination of information on the borrower's reputation. This is the least direct disciplining device, the costs of which (sustaining information dissemination mechanisms) are borne by all market actors and, often, also by government. It requires the intermediation of credit-rating firms, collateral control companies, or the provision of information by borrowers in the form of oral or written references about each other. All of these tasks may be internalised by lenders, but outsourcing - if possible - will generally result in more efficient markets.

Although these devices improve the functioning of credit markets, they all have one important condition in common: contracts must be formulated and enforced that regulate their use. This is often problematic, and hence contracting is in need of regulation itself.

8.2.3 Contract Hazards

Only in an environment where contracts can be formulated and enforced that alleviate the above problems sufficiently while leaving scope for mutually profitable capital transactions, capital markets of some sophistication emerge. Unfortunately, contracts typically exhibit two deficiencies: they cannot be written to include all possible contingencies, and a contract -designed to reduce costs of financial transactions - is itself costly to draft and enforce.

The contingency hazard may be dealt with by exploiting one typical feature of incomplete contracts: residual ownership rights (control rights over the asset in situations unspecified in the

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contract). By stipulating that the lender has residual ownership rights, the contract ensures that whatever event will threaten loan performance, repayment inability or opportunistic behaviour by the borrower will be punished by the removal of (part of) the ownership rights.

In sum, excessive uncertainty or asymmetric information and contract incompleteness or costliness may prevent lenders from coping effectively with the adverse implications of moral hazard and adverse selection via contract formulation. The result is credit rationing, which is the exclusion of some borrowers, or the installing of credit ceilings to all or some of the borrowers, in a credit market. Under these conditions, and contrary to the situation on many other markets, exclusion or restriction of market partners (credit rationing) is the best way for lenders to attain the goal of profit maximisation. The conventional way of doing that, raising prices for the 'commodity' i.e. raising interest), would not work in credit markets because of large default probabilities (Smith, 1976 ed.; Stiglitz & Weiss, 1981).

8.2.4 Government 'Intervention'

In practice, financial market actors often cannot alleviate their typical problems without help of the government. First, markets in general cannot be sustained without the government's 'specification and enforcement as the basic underpinning of efficient property rights' and hence of the existence of markets developed beyond the most primitive stages at all (Rowley, 1988:12-22). Apart from this general role, in (potential) financial markets, institutions must be created that reduce their peculiar problems. This is often a task that only third parties, like the government, can handle.

Often this is referred to as 'government intervention'. Yet what the government does is not so much intervening in an existing market as creating the conditions for markets to emerge. Where (1) transactions are forestalled by asymmetrically distributed information, adverse selection and moral hazard, and where (2) no contracts can be formulated and enforced to cope with these problems because of uncertainty or excessive contracting costs, markets can only emerge if the government, or a similar third party, addresses those problems. Since such markets are widely perceived as essential for the functioning of developed economic systems, government support and regulation is normal throughout the world.

The government may 'intervene' with, for example, "financial reporting requirements, disclosure of public offerings for financial regulators, government sponsorship of financial institutions, and loan programs that fill market gaps for younger borrowers, new firms, or other instances of market actors with weak, but promising creditworthiness" (Barry, 1997).

8.3. Capital Markets for Agriculture

Markets for credit to agricultural businesses exhibit several features that distinguish them from many other (industrial or services-related) credit markets. That is why agriculture, together with sectors like housing and small firms, is commonly neglected by commercial financial institutions (Lee & Haggard, 1995: 14). These factors notably include the level and nature of risk and the use of farm land. In response to these factors, specific financial systems servicing to agriculture have developed.

8.3.1. Risk

Farming exhibits a sensitivity to risks originating with the nature of the production process, the organisation of farm businesses, volatility of market prices, and government policies. The production process involves reliance on natural processes. This implies seasonal fluctuations in production and hence cash flows, and a time lag between investment decisions and results. Dependence on climate, weather and soil conditions and the possibility of diseases increase the risk of unanticipated production decreases, or yield risk.

If farms are of a family-farm type, as many over the world are, then risk will both derive from more complex sources and be less well-managed. First, in family farms the economics of the farm household and those of the farm firm will be interrelated, which renders the assessment of risks more intricate (Barry *et al.*, 1995: 442). Second, because in family farms all tasks and responsibilities connected to ownership, management and operation are assigned to one or a few individuals, business risk (connected to managing the farm) and financial risks (connected to managing the farm's financial assets) must be managed by the same person(s). Given the specialist knowledge needed for both, that is a riskier mode of operation than that of larger firms, where financial management is either 'outsourced' or carried out by an internal specialist.

Another potential source of risk is the possibility of (changes in) policy intervention. For various reasons, policy intervention is innate to the agricultural sector (almost) all over the world. First, food production is a critical factor in national welfare, so that governments rarely leave its results to the uncertain play of market forces. Second, farm land mostly covers a substantial part of a

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country's territory, and hence environmental and rural development concerns constitutes a public-good rationale for government intervention.

Third, the high price volatility in unregulated agricultural markets and the generally lower level of physical and social infrastructure in the countryside are causes for the 'farm problem': the income disparity between the agricultural sector and the general income level in the economy. That invites government intervention based on equity considerations.

Finally, agriculture often employs a considerable part of the working population, or makes up for a sizeable share of exports; or food outlays constitute large shares of household budgets. Such conditions provide political economy grounds for intervention. Where the polity is unstable or policy changes frequent, uncertainty about intervention implies an extra source of risk. Risk may also originate with (international) markets and the competition they generate. The interplay of policies and market pressure may create high uncertainty.

These circumstances, combining to make farming a relatively risky business, either decrease the scope for borrowing to finance agricultural production, or necessitate ingenious and costly credit contract solutions that respond to the specific risk sources of agriculture.

8.3.2 Farm Land

The use of land as the main factor of production imposes a number of constraints on the use of debt capital. First, it implies a low degree of flexibility for agricultural entrepreneurs, which decreases their risk-managing capacity. For many factors of production in other sectors, flexibility in risk management attached to that factor is offered by the market. Markets in farm land, however, are typically 'thin': even in well-developed and stable market economies, only a tiny fraction of farm land changes hands each year (Barry *et al.*, 1995:340). Hence costs of transactions of farm land tracts are high. The reasons for this infrequent trade are (1) the immovable and heterogeneous nature of farm land, which increases search and information costs, and (2) the fact that the price of farm land is influenced by a complex interaction of many demand-side factors, including agriculture, housing, industry, recreation, conservation and speculation. This increases the intricacy of the bargaining process.

A second effect of the use of farm land is that, because returns on farm land are relatively low in the short term, materialising fully in the medium run only, attracting debt with sufficient maturity is often problematic. Farmers therefore often have to rely on leasing rather than borrowing arrangements to finance the use of farm land (Barry *et al.*, 1995: 13).

Third, the inheritance system frequently burdens heirs with debts, which decreases their borrowing capacity. This is relevant in (at least) all countries that adopted the Napoleon Land Code. Fourth, farming is relatively capital-intensive, because real estate makes up a large part (typically 70-80 % in industrialised agriculture) of total assets. Hence, farms may be reasonably solvent but chronically illiquid. This again calls for leasing rather than buying arrangements, and precludes capital transfers of the pure borrowing type that would include regular payment of instalments.

8.3.3 Features of Financial Markets for Agriculture

All of these factors, besides triggering production and marketing responses, have stimulated the development of specific agricultural financial management practices: agriculture offers a high premium on effective financial management (Barry *et al.*, 1995:18). These practices include the importance of relationship-driven rather than price-driven transactions, the use of futures markets, the operation of specialist agricultural finance intermediaries, and the functioning of government programs.

First, transaction costs in agriculture are considerable because of uncertainty and (sometimes) asset specificity affecting the resale value of collateral (Riordan and Williamson, 1985). An effective way to reduce transaction costs is building longer-term relationships with the market partner, thus leaving the spot market and entering in some degree of dynamic transaction commitment. With higher degrees of uncertainty, the decision to transact will increasingly be controlled by existing relationships or scope for new ones.

Second, futures markets can be used to trade away some of the price risk of agricultural produce. However, operating on these markets requires specialist knowledge, experience and considerable time investment. Third, without the activities of specialist financial intermediaries, loans to farmers would probably be unattractive to most potential lenders (Barry *et al.*, 1995:443). Only they can adequately assess specific agricultural risks, modify the seasonally determined and longer-term pay-off on agricultural loans to maturity terms acceptable to lenders, and attend to a multitude of details relating to the cultural distance between mostly urban lenders and rural borrowers.

Fourth, the government may supply farmers with credibility or access to money. Programs may take the form of the setting up or subsidising of mutual borrowing organisations, loans

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extended by the government, the government 'backing' commercial credit extended to farmers, 'green' credit rates, or the creation of favourable conditions for target groups (such as young farmers in a start-up phase).

8.4 Central European Capital Markets for Agriculture

Capital markets as well as agricultural sectors in the post-socialist Central European countries share certain characteristics peculiar to those economies in transformation, which pose typical problems in the development of post-socialist capital markets.

8.4.1 Transitional Capital Markets

On the supply side of capital markets for agriculture, a basic legal and regulatory framework, adequate bank supervision, and a workable solution to the corporate governance problem of banks and client firms have been, and are, the main challenges in the transformation process. In view of the socialist past, crucial in that process were the following steps:

- (1) setting up a Central Bank that monitors and regulates the national financial system;
- (2) founding (either from scratch or from former monobank branches) commercial banks;
- (3) cutting the traditionally strong relationship between banks and the state on the one hand, and the 'servicing' relationship between banks and (especially large) firms - typically resulting in soft-budget constraints - on the other hand;
- (4) developing specialised banks in the various economic sectors. This should allow them to make informed risk-assessments and monitor firms adequately.

At the moment of writing, tasks (1) and (2) have been completed in Central Europe, while (3) and (4) have been realised incompletely, especially so in the case of the agricultural sector. Major problems still threatening viable financial sector reform typically include inherited and newly accumulated 'bad' loans, the under-developed infrastructure and incentives for collection of savings, the under-developed human capital, technological, and accounting infrastructure, and the absence of securities markets (Gros & Steinherr, 1995:200-201,208).

8.4.2 Agriculture: The Post-Socialist Endowment

On the demand side of financial markets for agriculture, typical features of the agricultural secto

that are relevant to the development of credit markets can be distinguished as either being an inheritance of the socialist organisation of production, or an (unintended) consequence of subsequent 'transition' policies. The post-socialist endowment is shaped by previous central planning of the economic system, product selection policies, and the nature of capital goods in agriculture (Hrncir, 1993:305).

In the socialist era, the only lender to agriculture was the agricultural branch of the state-managed monobank. With the introduction of a two-tier banking system, this branch was in some countries privatised. The hope was that in addition, effective private agricultural banks would appear. This has hardly happened, and thus financial intermediaries to agriculture are scarce. The banks that do operate are often ill-suited to serve farmers because of their lack of risk-assessment capacity. Part of the cause for that lies in farmers' inadequate provision of information on their financial situation and risk prospects, and part of it originates with the use of loans in the socialist system.

Funds used to be treated as subsidies rather than loans. The aim was to provide liquidity to firms (be they profitable or loss-making) rather than to fund profitable or promising companies. That aim, in turn, was understandable because the central planning system focused on physical targets rather than consumer preferences and firm profits, as the market system does. Managers, in response, were not concerned with the financial balance sheet of their enterprises. Credit degenerated into a mere accounting tool, and the boundary between illiquidity and insolvency was blurred. Hence, debt contract failures and inter-enterprise arrears occurred where informational deficiencies excluded proper bankruptcy procedures and restructuring schemes. Such practices provided firms with cheap credit, while the low capital/asset ratios of banks and their heavy dependence on client survival forced them to allow default (Hrncir, 1993:305). Currently credit market participants on both the supply and demand side still suffer from a lack of financial management capacity. The writing off of bad debts tends to lag in agriculture compared to other sectors.

Second, agriculture has needed to make an especially large effort to restructure in comparison to other sectors of the economy. Reasons include the large scale of production and the politically determined selection of the product mix, both of which are not sustainable in the new market environment. The large decrease in scale of production also means that banks have to adjust

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their services so as to match smaller-scale clients. Since this is costly and banks are often slow to adapt, this inhibits the development of credit markets for agriculture. Also the complicated post-collectivist ownership relations either constitute a barrier for restructuring, or weaken the incentive to do so.

Third, the Central European socialist economies directed large parts of their investment funds to agriculture. The aim was to profit maximally from the economies of scale that the typically large collective and state farms offered by industrialising agriculture. While large gains in productivity were realised during the earlier part of the post-war period, especially in the 1970's and 1980's it became clear that Central European agriculture had become *both* capital and labour-intensive: agriculture was now overcapitalised. The main reason for low capital productivity was the incapability of the central planning system to sustain a smoothly functioning system of supply and distribution of capital goods, spare parts and maintenance services (Ellman, 1979:94-98).

As co-ordination problems in the socialist economies worsened in the last decade of their existence, the quality, if not the quantity, of the agricultural capital stock deteriorated rapidly. Farms in 1989 were endowed with outdated and deficient machinery and buildings. The consequence now is that the need for strategic (rather than operational) investments is great; hence large and long-term loans are necessary for an adequate restructuring of the sector (Davis et al, 1998:4, Schrieder and Heidhues, 1998).

8.4.3 Agriculture: Impacts of Transformational Policies

In addition to the post-socialist endowment to agriculture, the 'transition' policies that were applied to the Central European economies created (or failed to solve) various problems in agriculture. These factors create large borrowing needs, but at the same time limit the capacity of farms to attract loans. Those most relevant to credit markets include the following.

The weak human capital structure in the sector necessitates large investments in retraining and recruiting, while at the same time the economic hardships as well as the demographic and professional characteristics of the labour force have decreased its labour market mobility. Fragmented land ownership patterns increased transaction costs of land markets, hindered the use of land as collateral, and added to the structural inflexibility of the sector. The price scissors, operating in the early transition years, eroded what financial buffer farms still had. The relatively large changes in agricultural policies during transition, alternately liberal and protectionist, have constituted an extra risk source. Also domestic programmes, e.g. with regard to credit, have typically

changed considerably both in scope and level of expenditure during transition, amounting to shocks to farm businesses.

The failure to find a solution to the bad debt problem has often reduced the borrowing capacity of farms. The continuing governance problems of banks due to their intertwinement with industrial firms and the government have been a disincentive for them to be restructured and become consumer-oriented. Finally, the fact that the quality and enforceability of contracts is central to the prospects for a developing credit market implies an extra barrier in an environment with a typically incomplete legal framework that, moreover, is often not effectively applied and enforced.

8.5 Conclusions

The theory of capital markets identifies several problems in the functioning of credit markets, and suggests possible solutions. In the field of agriculture, these problems are generally more severe and the solutions more specific. In the post-socialist agricultural transformation, particularities of the agricultural sector and transformation challenges coincide to create a uniquely problematic environment for the development of capital markets servicing farms.

Because a loan transaction is an exchange of present certainty for a future promise, the typical problem in capital markets is that of uncertainty (and hence risk) about project prospects and, in addition, the asymmetric distribution of information between lender and borrower on borrower attributes and project prospects. These problems can only be solved with adequate, often sophisticated contracts that align the lender's goals to borrower interests. The use of adequate contracts is predicated on effective contract legislation and enforcement, and on the existence of specialised intermediaries. Contract incompleteness and costliness may preclude loan transacting and lead to credit rationing.

In agriculture the problems are more severe because risk is higher; because the specificity of farm production and management places larger demand on the quality of financial intermediaries; and because the use of farm land reduces liquidity.

In the transformation context, financial intermediation is particularly difficult because there is less information on farms due to the often dubious quality of financial records; due to the absence

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or incompleteness of repayment track records; because of ineffective definitions of ownership rights; because of large costs of transacting; and because of the incomplete transformation and specialisation of banks.

In conclusion, the following observations can be made. First, the theoretical emphasis on problems of small family farms in the Western literature on agricultural credit is hardly relevant in Central Europe. Farms are relatively large (in area) and typically co-operative/corporate/shareholder rather than family farms. On the one hand this excludes the heavy correlation between personal managerial characteristics and life cycle to farm features and performance, and opens up alternative ways of financing, such as joint-stock structures and other ways of attracting outside capital. On the other hand, it introduces specific problems of shared ownership to financial decisions, such as risk taking and the distribution of profit.

Second, market features are radically different from those from which Western finance theory departs. Whereas Western agribusiness chains traditionally had clearly separate parts and are now converging towards more vertically-integrated structures under demand quality pressures, the Central European agribusinesses traditionally were, and still are, heavily vertically integrated. This means that emerging financing relations between farms and upstream and downstream industries can build on long-standing relationships, which suggests that relationship-driven finance such as supplier credit could play a large role in the provision of farm capital. Presently, payment arrears and uneven power relations appear to prevent such mutually beneficial relationships.

Third, the financial markets 'proper' (banks) are characterised by huge misfits between needs and opportunities on both supply and demand side. Farms need much and long-term capital in order to restructure; but their profits are too low in relation to interest rates to obtain it. Banks cannot respond to the large credit demand in agriculture because of their insufficient specialisation and because of a missing market environment that would otherwise alleviate information problems.

A final observation concerns the ambiguous role of government. On the one hand, it stimulates the development of credit relations between farms and commercial banks by guaranteeing loans. On the other hand, preferential treatment of 'old' production structures and the pervasive extension of subsidies crowd out real credit and hinder the development of market-type credit relations.

