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## Determinants of Financial Capital Use

### Review of theories and implications for rural businesses

#### ABSTRACT

This paper presents a review of financial economics literature and offers a comprehensive discussion and systematisation of determinants of financial capital use. In congruence with modern financial literature, it is acknowledged here that real and financial capital decisions are interdependent. While the fundamental role of the (unconstrained) demand for real capital in the demand for finance is acknowledged, the deliverable focuses on three complementary categories of the determinants of financial capital use: i) capital market imperfections; ii) factors mitigating these imperfections or their impacts; and iii) firm- and sector-related factors, which alter the severity of financial constraints and their effects. To address the question of the optimal choice of financial instruments, theories of firm capital structure are reviewed. The deliverable concludes with theory-derived implications for agricultural and non-agricultural rural business' finance.

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# Contents

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1. Introduction .....	1
2. Sources of financial capital .....	2
3. Determinants of financial capital use.....	4
3.1 Capital market imperfections.....	5
3.1.1 Incentive conflicts and information asymmetries .....	5
3.1.2 Weak property rights and incomplete contracting .....	6
3.1.3 Transaction costs .....	7
3.2 Factors mitigating capital markets imperfections.....	8
3.2.1 Financial intermediation and market institutions for the exchange of financial information .....	8
3.2.2 Practices improving incentive alignment.....	9
3.2.3 Practices mitigating information problems .....	10
3.2.4 Institutions/regulations and public policies .....	12
3.3 Firm characteristics .....	13
3.3.1 Ownership structure and agency cost of free cash flow.....	13
3.3.2 Firm size and age .....	15
3.3.3 Joint asset ownership and horizontal integration .....	16
3.3.4 Social capital and reputation .....	17
3.3.5 Other entrepreneur and firm-related factors.....	18
3.4 Sector and production-related factors .....	18
3.4.1 Profitability and growth potential .....	18
3.4.2 Asset specificity .....	18
3.4.3 Production/sector-specific risk and income volatility.....	19
3.4.4 Other sector and production-related factors .....	20
4. Theories of capital structure choice.....	21
4.1 Theories of capital structure choice in imperfect capital markets with perfect competition .....	21
4.1.1 The trade-off theory of capital structure .....	21
4.1.2 Pecking order theory of capital structure.....	23
4.1.3 Agency theory approach to capital structure choice.....	24
4.1.4 Transaction costs economics approach to capital structure choice .....	24
4.1.5 Firm growth continuum and capital structure choice.....	25
4.2 Determinants of capital structure choice in imperfect capital markets with imperfect competition .....	28
4.3 Determinants of the lease- or-buy decision.....	29
5. Financial characteristics of agricultural and rural businesses .....	30
5.1 Effect of small business size .....	31
5.2 Effect of tradition.....	33

5.3	High capital intensity .....	34
5.4	Low debt-to-asset ratio.....	35
5.5	Low return to investment and low growth sector .....	35
5.6	High exposure to risk .....	37
5.7	Geographic dispersion and lack of coordination of rural capital demand .....	37
6.	Summary and concluding remarks.....	38
	References .....	41

### **List of Figures**

Figure 1.	The trade-off theory of capital structure.....	22
Figure 2.	Firm continuum and sources of finance.....	26

# **Determinants of Financial Capital Use**

## **Review of theories and implications for rural businesses**

**Jarmila Curtiss \***

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### **1. Introduction**

Farmers' access to financial capital can directly affect their access to real capital. Without efficient financial capital markets, farmers might delay adopting more efficient technologies as they become available. Agricultural capital markets also allow farmers to pursue profitable investment opportunities without having to save the necessary funds or sacrifice their own current standard of living. As such, financial markets enable the movement of purchasing power and productive assets to those who can use them most profitably. This accelerates efficiency gains in agricultural production and farm management, and thus improves overall agricultural productivity (Collender and Morehart, 2004, p. 41).

Numerous empirical studies indeed indicate that rural financial systems often work imperfectly (e.g., Carter, 1988; Benjamin and Phimister, 1997; Bierlen et al., 1998; Petrick, 2004; Blancard et al., 2006). These systems supply funds to farms for their agricultural and diversified activities in insufficient amounts and on terms that differ according to socially desirable levels of production and investment. This leads to under-investment, under-employment of production factors and underproduction, which together suppress the rate of return on investments, technology adoption, and productivity (Hubbard and Kashyap, 1992; Vasavada and Chambers, 1996; Bierlen and Featherstone, 1998; Barry et al., 2000). At the individual farm household level, credit constraints can affect resource allocation decisions, influence a household's well-being and have important consequences for policy outcomes (Briggeman et al., 2009).

The various sources of capital market imperfections, including information asymmetries, transaction costs or weak property rights, are likely to be augmented by specific impediments related to agricultural and rural undertakings. These impediments encompass financial specificities of agriculture and rural small businesses, such as their low returns to capital and spatial dispersion, or agricultural production and product market uncertainties. These sectoral and regional characteristics discourage private investments and hinder access to loans. There is thus a need for the institutional support of financial capital supply, as well as more concerted efforts in coordinating rural capital demand.

This paper will provide a comprehensive overview of financial economics, to new institutional economics approaches, and financial decision-making in firms. The main purpose of the review is to identify main determinants of financial capital use. By revising the financial effects of firm and sector characteristics, this paper aims to identify financial characteristics of agriculture and non-agricultural rural businesses.

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Based on the financial economics theory, in a perfect capital market, demand for physical capital is independent of conditions of financial capital supply. Therefore, the demanded amount of financial capital would fully correspond with the optimal level of real capital demand. That demand for real capital is the principal driver behind the demand for financial capital is, therefore, fully acknowledged. Financial capital market imperfection can, however, affect the effective demand for physical capital in a form of non-optimal capitalisation, or higher investment sensitivity to the level of firm internal funds, thereby limiting and postponing physical capital acquisition and technology adoption. This constraining effect and widespread evidence of capital market imperfections provides the motivation to devote a substantial part of this paper to capital market imperfections and to the effect of financial constraints on the choice between the sources of financial capital. In other words, much of the paper explores the question of optimal capital structure.

The deliverable is structured as follows. The following chapter presents a short discussion of the main sources of financial capital. Chapter 3 delivers a discussion of the determinants of financial capital use, and identifies four categories: i) determinants of optimal (unconstrained) demand for real capital; ii) sources of capital market imperfections; iii) factors mitigating these imperfections or their impacts; and iv) firm- and production-related factors, which change the severity of the financial constraints and/or their effects. Since the first category of determinants is the subject of deliverable 4.2, this deliverable focuses on the other three categories of determinants of financial capital use. Chapter 4 reviews theories of capital structure choice, because related to the issue of financial capital use is not only the question of its volume, but also its structure. These theories, starting with financial economics approaches and ranging to new institutional approaches, consider various combinations of factors as determining the optimal capital structure, as discussed in Chapter 3. Subsequently, chapter 5 transmits the collected knowledge to the case of agricultural and non-agricultural rural business and presents their main financial characteristics. The final chapter of this document delivers a short summary and concluding remarks.

## **2. Sources of financial capital**

In finance and accounting, the term "financial capital" refers to the purchasing power or medium that represents saved-up financial wealth, usually in the form of currency, which is used by firms or individual entrepreneurs to invest - to start or develop a business, i.e. to purchase or acquire physical capital. Physical capital comprises physical goods such as machinery equipment, stalls or office equipment and buildings that are repeatedly used over several production cycles. This capital is accumulated to produce goods or to provide services mainly with the intent of receiving income and/or achieving capital gains. Financial capital, representing free purchasing power, then allows firms to pursue profitable investment opportunities, without having to save the necessary funds (Collender and Morehart, 2004). There are various sources of financial capital that vary in their characteristics. Particularly in imperfect capital markets, the costs of and risks related to various financial sources will differ and establish the need to optimise the capital structure. This section introduces the main sources of finance, as they represent a recurring theme throughout the paper.

The two most important sources of financial capital are debt and equity. Debt represents credit from a lender, also known as creditor, and is created when a creditor agrees to lend a sum of assets to a debtor (borrower). Debt encompasses any form of a deferred payment for provided resources; the resources provided may be financial (e.g. granting a loan), or they may consist of goods or services (e.g. consumer credit). Lenders usually grant capital finance with expected repayment, plus a price (interest). Lenders also commonly gain a limited form of control over the operation of the firm<sup>1</sup>, but the contractual agreement formulating the

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<sup>1</sup> Debt holdings may also offer some measure of control to the investor if the company is a fledgling start-up or an old giant undergoing 'restructuring'. Further, under extreme adversity, financial contracts are designed so that ownership and control revert to the debt holders (according to seniority

lender-borrower relationship has strong enforcement power. For example, if interest payments are missed, the creditors may take control of the company and liquidate it to recover some of their investment. Debt can be acquired from financial institutions such as commercial banks, finance companies, credit unions, or other non-traditional financial institutions, which are intermediaries managing deposits from individuals and businesses and offering them to productive use in firms or by entrepreneurs in diverse forms of debt securities (longer-term funds), from standard credits to micro-credits. Debt can be also obtained from non-financial sources, for example, from suppliers of goods and services in the supply chain (trade credit), or from other businesses (inter-enterprise credit) and individuals on informal markets, as well as from governments. Also, the principal owner can be a lender to the business he/she is the principal owner of.

Equity financing a business's investment projects represents a direct increase in the business's own capital. Financial capital that is required for the start-up of a business is mainly equity that is contributed by the entrepreneur or co-owners of a business, and obtained, for example, by means of savings or inheritance. In a more advanced stage of a firm's life cycle, equity is typically acquired through external investment. Investors who directly finance new assets (physical capital) generally acquire share ownership, together with some form of control over the firm. Equity holders own and control the firm's assets, although ultimate control is determined by the type of equity (e.g., voting versus non-voting stock, preferred versus common stock, limited versus general partners) (Barry and Robison, 2001). As profits are made by the business, equity investors either get paid their portion in profits through cash dividends or the profits are retained by the business (invested into physical capital), which adds to the value of the equity and the value of per-owner capital share (Kriz et al., 2000).

After the initial equity financed by the principal owner and the start-up team (insider), businesses often obtain equity for their successive growth from high net worth family members, friends or acquaintances on the so-called angel market. As another equity source, venture capital represents intermediated funds that are provided on more formal markets than angel finance markets<sup>2</sup>. These markets are often referred to as private equity markets. After achieving considerable size, businesses gain access to equity through issuing publicly-traded stocks on the stock exchange. This size stage is only rarely achieved or aimed at by agricultural companies that are active in primary production (Berger and Udell, 1998).

Debt and equity require different institutions for delivery (Kriz et al., 2000). To facilitate the effective functioning of financial institutions and good credit contract design, various institutions and mechanisms are required. For example, there is a need for government oversight and deposit insurance mechanisms that would inspire confidence in individuals to provide deposits, legal regulations that provide for the proper enforcement of contracts, accounting standards that would enable accurate determinations of borrower creditworthiness, or risk management tools such as property and casualty insurance that would allow borrowers to protect their capital assets from loss. Risk management is as important for equity as it is for debt financing. Furthermore, in the case of equity, contract enforcement is important because an ownership interest must be delineated and protected.

Another example of a legal institution that is important for equity investing is the protection of limited liability for owners in a corporate or limited partnership form. Accounting standards are also important for equity financing because those investors who provide capital must be able to properly value their share of equity in the business enterprise at any time.

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and size of claims). Debt capital thus represents a form of contingent ownership of the firm (Barry and Robison, 2001: 522).

<sup>2</sup> The use of the term "venture capital" is not uniform. Sometimes it refers to any equity investment in a new or early stage venture, including angel finance. However, we will distinguish between the informal angel finance market and the formal intermediated venture capital market to increase the clarity of the financial sources (similar to, for example, Berger and Udell, 1998).

The relationship between debt and equity is an important criterion for the business to qualify for a debt contract and to control its risks of bankruptcy. Companies that are highly leveraged, that is, that use a high ratio of borrowed money to equity, may be at risk of bankruptcy if they are unable to make payments on their debt; they may also be unable to find new lenders in the future. However, financial leverage can also facilitate acquisition of complementary capital to equity capital, which can increase the shareholders' return on their investment. Often, tax advantages are also associated with borrowing. Equity, which represents the level of assets (often tangible assets), can also act as collateral and facilitator of the availability of debt. In this case, equity is in complementary position to debt.

Alternative forms of capital financing also exist, and among these leasing is particularly worth mentioning in the context of agriculture. Leasing does not represent an ownership claim of the firm but a right to use physical capital (assets) under specified conditions (Collender and Morehart, 2004) different to conditions of a debt or equity contract. Lease contracts are usually perceived by the theoretical literature as a standardised type of financial instrument that is economically equivalent to other methods of acquiring assets, except for its tax ramification. Empirical studies, however, suggest that leasing is a more expensive method of acquiring assets relative to standard debt purchase instruments (Ben-Yosef, 1988); this is likely due to the fact that lessors (providers and owners of assets) are not restricted by interest rate ceilings (Nair, 2010), and also due to insurance payments that are included in the lease price. On the other hand, leasing also offers specific advantages. For traditional credit, enterprises require assets that can serve as collateral, which is not the case (or at least to a degree) for leasing financing, where the primary form of security is the leased equipment. In addition, leases often require lower down-payments than the equity required for loans, and therefore are more accessible for enterprises that have limited liquid funds (Nair, 2010).

Many of the presented characteristics and considerations of financing mainly through equity and debt will be discussed from a theoretical perspective in Chapters 3 and 4.

### **3. Determinants of financial capital use**

The determinants of financial capital use can be categorised into four groups: i) determinants of optimal (unconstrained) demand for real capital; ii) financial capital use constraining factors, which are factors associated with capital market imperfections; iii) factors mitigating these imperfections or their impacts; and iv) firm- and production-related factors, which change the severity of the financial constraints.

Since the first category of determinants is discussed in deliverable 4.2., this deliverable focuses of the remaining three categories. This chapter follows this categorisation. By acknowledging the existence of transaction costs, liquidity constraints or information and incentive asymmetries between lenders and borrowers, investors and firms or shareholders and managers, it can be claimed that the most natural state of capital markets is imperfection. Addressing and mitigating the costly effects of capital market imperfections and the resulting financial constraints requires the origins of the capital market imperfections to be identified, including incentives conflicts, transaction costs, risk, property and control rights. It is also necessary to know if/why there is any kind of systemic variability in these imperfections between firms, productions or sectors. This chapter reviews the theoretical literature addressing capital market imperfections, and aims to identify the main factors that hinder efficient functioning of the capital markets. The chapter also reviews instruments that could mitigate these imperfections or their consequences, and could facilitate a more efficient allocation and use of financial capital and thus lead to the development of competitive agricultural and rural businesses. Moreover, it discusses characteristics of firms and production, such as firm size and asset specificity, which are generally accepted as factors that alter the severity of financial constraints and that require different capital (governance) structures were the objectives of cost minimisation followed.



### 3.1 Capital market imperfections

The basic perfect capital market assumptions refer to a frictionless market condition, perfect competition in product and securities markets, (i.e., all producers and consumers are price-takers), information efficiency (equal access to market prices and information), and rational agents (investors) (e.g., Modigliani and Miller, 1958, 1963; Rubinstein, 1973). Markets are considered frictionless if there is no transaction cost, which implies that the borrowing rate equals the lending rate, no taxes, and all assets are perfectly divisible and marketable; this also suggests that human capital is non-existent (is not divisible and cannot be owned as an asset), and there are no constraining regulations (Mathiesen, 2011). Information efficiency refers to information being costless and received simultaneously by all individuals; investors are perfectly rational and use it to maximise their utility. In this context, it is also assumed that all agents who act in the interest of principles (investors), i.e., managers, always maximise the shareholders' wealth, thus there are no agency costs borne by principles. Violation of any of these assumptions can, therefore, be considered a source of capital market imperfections.

#### 3.1.1 Incentive conflicts and information asymmetries

One of the main and most frequently addressed source of capital market imperfection is the infringed condition of information efficiency due to *information asymmetries* between the principles (lenders, shareholders, or landowner) and the agents (borrower, manager, tenants). In the context of agriculture, the lender-borrower relationship is particularly important due to the predominantly small size of agricultural business (Barry and Robison, 2001).

In their influential paper, Stiglitz and Weiss (1981) showed that the presence of informational inefficiencies on the credit market could lead to credit rationing and market failures. Due to information asymmetries, the lender may lack information about the borrower's objectives as well as the risks of the foreseen investment project. Farmers representing the borrowers (agents in the debt financing relationship) then dispose of discretion over the true farm financial position and productivity, and can withhold from the lenders information about repayment intentions. The asymmetries between the lender and the borrower in both the information and incentive structures are sources of specific concerns to the lender (Barry and Robison, 2001). Firstly, it is uncertain whether the agent is riskier than believed, and presented to be, during the closing of the loan contract, which reflects a problem referred to in the literature as the *adverse selection problem* (Akerlof, 1970; Wilson, 1979; Rothschild and Stiglitz, 1979).

Secondly, it is not known whether the agent (borrower) will take on greater risk during the term of the contract (loan) than was originally anticipated, which represents the so-called *moral hazard problem* (Holmström, 1979). In the case of a credit, borrowers are provided with adverse selection incentives for borrowing over using their own current or future resources, since they do not bear the full consequences of their actions. The consequences of a borrower's investment projects-related actions that could lead to a default are borne by the lender, at least to the degree or share bound to the credit contract. With an increasing debt-to-equity ratio, a borrower then has an increasing incentive to take more profitable but also riskier actions and increases the likelihood of bankruptcy. This would lead to high costs to the lenders, as he/she would bear the transaction costs of liquidation as well as lost profit, which originally motivated the lender-borrower contract. The lender is thus motivated to increase control over a borrower's actions and specialise in the sector he/she invests in to reduce these monitoring costs. However, as Stiglitz and Weiss (1981) show, reducing the costs of and losses from bad loans, it may be optimal for imperfectly-informed banks to ration<sup>3</sup> the volume of loans instead of raising the lending rate, as would be predicted by classical

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<sup>3</sup> Credit rationing resulting from information and incentive asymmetries in the credit market refers to a situation where demanded volume of credit exceeds its supply.

economic analysis. The credit rationing that results from information asymmetries can, however, also result in underfunding firms with high returns on proposed investment projects, and thereby constraining the value of production, technological progress and thus productivity growth (e.g., Hubbard and Kashyap 1992; Vasavada and Chambers 1996; Bierlen and Featherstone 1998). Factors mitigating the credit market that are affected by severe information and incentive inefficiencies thus become important for the efficient use of firms' productive capacities.

Nevertheless, as Colombo and Driffill (2003) argue, for credit rationing to have an effective consequence for the economic system, credit market inefficiencies also have to be accompanied by some inefficiencies of the equity market. They referred to Greenwald et al. (1984), and Myers and Majluf (1984), who consider the possibility of substituting credit with equity. These authors showed that, as with the credit market, informational failures could also initiate adverse selection in the equity market, which would reduce the substitutability option. As suggested above, this double issue of information asymmetries for the capital market is often neglected in the case of agriculture because of the small-scale farm tradition, which generally rejects the possibility of growth by means of acquiring equity financing and shared ownership. However, the small-scale farm structure is not unique or dominant in all EU member states; therefore, the information and incentive asymmetries are also of concern with regard to the equity market.

In the context of equity market, the principal agent relationship extends to the relationship between an investor (stockholder) and a firm. Myers and Majluf (1984) have shown how shareholders may have to bear the costs of adverse selection among firms. In new sectors, a few investors (insiders) may have good information about the future profitability of new firms. The rest of the investors are uninformed and may thus perceive the new firms' financial prospects as being close to identical. Because of this and because uninitiated investors also trade on the stock market, firms with less than average profitability will be overvalued. Such firms will, therefore, prefer to finance new projects by issuing new shares (as opposed to debt), while firms with higher than average profitability will find it costly to finance new projects by share issue, as they will be undervalued (Löfgren et al., 2002).

Regarding the equity market for smaller firms, which is more relevant for agriculture, the small firm information opacity represents even more severe problem for investors. The public equity market signals a firm's financial performance, for example, by means of share price development or dividend payments and stringent financial (accountancy) reporting, tools that are not available on the private equity market for smaller firms. Information asymmetries thus represent a more severe source of market imperfections than in public equity market, which explains why angel or venture capital investors are mostly specialists in the given sector or undertaking branch, and can get involved in temporary management capacity to prevent adverse selection problems (see, for example, Berg and Udell, 1998).<sup>4</sup>

It became common knowledge that information asymmetries and incentive compatibility problems in both credit and equity markets result in higher costs of external financing and lead to firms' higher dependency on internal financing (Blancard et al., 2006).

### *3.1.2 Weak property rights and incomplete contracting*

The conditions under which financial capital is provided and acquired are formulated in a contract between the financier and the firm or entrepreneur. The drafters of the contract, however, face the difficulty of anticipating and including conditions that reflect the many contingencies which may arise during the course of the contractual relationship, and which makes them likely to end up writing an incomplete contract (Hart and Moore, 1988). This insufficient information about the future 'state of the world' and the asymmetric information between the parties in the contractual relationship that forms during the course of the

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<sup>4</sup> The issue of small firm finance is developed in more detail in Section 4.1.5.

contract could suggest a full overlap with the previously discussed concept of information asymmetries in financial relationships. However, there is a distinction between the problems that arise from information asymmetries and contractual incompleteness. While certain contingent statements in the contract are infeasible because of differences in information available to the parties of the contract, in the case of incomplete contracts, the parties may have the same information; however, the (transaction) cost of processing and using the information prevents the use of a complete contingent contract (Hart and Moore, 1988). The problems of incomplete contracting and related transaction costs have important implications for the efficiency of a long-term economic relationship and offer possible rationalisation of the emergence of various types of cost-optimising institutions (Williamson, 1985, 1989 and Klein et al., 1978).

Aside from incomplete contracting, this section considers the problem of weak property rights; it builds on the proposition that i) property rights are fundamental for the efficiency of economic activities, since entrepreneurs will not invest if they expect to be unable to keep the fruits of their investment (Johnson et al., 2002), and that ii) property rights are subject to incomplete contracts that will hinder the full incentive power of possessing the property right and introducing risk. The objective of the contract should be to bring about a perfect coincidence of objectives between both parties (Aghion and Bolton, 1992), optimise the allocation of control and risk, and thus minimise space for adverse (opportunistic) behaviour. Assuming the availability of a mechanism to enable contract renegotiation, the contracts are expected to be adjusted, and property rights possibly relocated with improving information and knowledge of the state of the world.

Among other things, financial contracts specify property (control) rights and relative claims on the firm's assets and earnings. As discussed in Chapter 2, the specifications of the control rights<sup>5</sup> and the relative claims on the firm's assets and earnings significantly vary between the two most standard financial instruments, debt and equity. Equity holders own and control the firm's assets, while the debt capital contract does not entitle financiers to ownership of a firm's assets, or entitles them only to an ownership contingent upon extreme adversity (Barry and Robison, 2001). The question naturally arising for a situation of incomplete contracting (i.e. providing for residual control rights) is: How should control rights be allocated to achieve efficiency of the action subject to contractual relationship? Aghion and Bolton (1992) show that an entrepreneur (equity holder) should have residual control rights in states of the world where his private benefits are relatively high, and the investor (lender) should have control in states where the entrepreneur's private benefits are relatively low. This can mainly be explained by the notion that the equity (residual control) holder will exercise effort proportionate to the anticipated rewards. In states where the entrepreneur's private benefits from his efforts are relatively low, the entrepreneur may choose go-for-broke actions, which may yield adverse effects that accrue more to the lender. Therefore, from the perspective of the contract's economic performance, the residual right of control associated with ownership should be shifted to the lender so that s/he can exert appropriate effort to protect his/her debt claims.<sup>6</sup> Therefore, debt and equity can also be considered post-contractual governance structures that arise due to incomplete contracting (Williamson, 1988, 1993; Grossman and Hart, 1986).

### *3.1.3 Transaction costs*

Capital markets can be affected by explicit transaction costs, such as the various fees associated with credit application processing that lenders charge borrowers (Miller et al.,

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<sup>5</sup> The control rights that are not designated by the contract or the law are residual control rights that always stay with the equity owner (Barry and Robison, 2001).

<sup>6</sup> For more literature that analyses financial decisions from an incomplete contracting perspective, see, for example, Townsend (1979), Gale and Hellwig (1985), Grossman and Hart (1986), Hart and Moore (1990), Bolton and Scharfstein (1990), Berglof (1990), or Hart and Moore (1998). For more recent literature, see, for example, de Bettignies (2008).

1993). However, implicit transaction costs also have an impact on financial decisions and form of financing. For example, the preceding section illuminated the role of transaction costs of processing and using all available information in designing a contract, which result in incomplete contracting. Post-contractual transaction costs related to costs of liquidation due to asset specificity as originally conceptualised by Williamson (1985, 1989) will be discussed in a later section on the role of asset specificity. Section 3.3.1 will discuss managerial transaction cost (firm internal agency costs), which are agency costs of free cash flow dispersion, replacement resistance, resistance to profit liquidation or merger, power struggles, excessive risk-taking, excessive diversification, excessive growth, etc. (Jensen and Meckling, 1976). The implicit transaction costs further include costs imposed on borrowers related to efforts to reduce information asymmetries, for example, the costs of preparing accounts, as well as financial plans, which would provide lenders with information on a borrower's financial status (Benjamin and Phimister, 1997). Together with search and information costs, the transaction costs of capital stock adjustment are often considered to result in gradual rather than instant adjustment of a firm's stock of capital to its desired equilibrium (Bierlen et al. 1998). The adjustment costs thus have an impact on the form of demanded financial capital, particularly the length of repayment obligations for individual debt securities.

Even if transaction costs can theoretically affect both demand and supply sides of the capital market, the above examples suggest that they tend to be mainly borne by agents on the demand side. Transaction costs that would occur to suppliers of finance are transmitted into higher security prices or interest rate levels, or result in finance rationing. Transaction costs can thus cause long-lasting misalignments between the price and the fundamental value of a security and distort both security (financial source) choice and allocation.

## ***3.2 Factors mitigating capital markets imperfections***

### ***3.2.1 Financial intermediation and market institutions for the exchange of financial information***

Information asymmetries in capital markets justify and widen the role of financial intermediation. Without intermediaries in credit markets, borrowers would have difficulty finding lenders. Intermediaries such as banks, credit unions (cooperatives), or micro-credit institutions help in this process. These intermediaries take deposits from those (individuals, businesses, municipalities or states) that have money to save. They can then lend money from this pool of deposited money to those who seek to borrow. Banks popularly lend money in the form of loans and mortgages. Similarly, firms or businesses seeking expansion or modernisation of their operation through equity would have difficulty finding private investors without equity markets. Intermediaries such as dealers/traders/agents facilitate this process. The process of investing in equity involves more complex transactions than simple bank deposits and requires markets where primary investors and their agents can meet issuers of securities and their agents, and where existing investment commitments can be sold on to other parties. Less complex equity markets are the private equity market and angels market. A more well-known example of a capital market is a stock exchange, which represents the possibility for a company to raise money by selling shares to investors.<sup>7</sup>

Intermediaries who were mentioned in the context of both debt and equity securities markets play an important role in the effective functioning of the market, as they facilitate the discovery of the adequate supply side for the demand side, and vice versa, and help with the contractual arrangements of their exchange, thus reducing their transaction costs. Also, intermediaries' specialised knowledge and evaluation standards are expected to increase confidence on both sides of the facilitated transactions. Financial intermediation thus brings benefits to capital markets through economies of financial variables production, reducing the unit transaction costs associated with lending or investing.

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<sup>7</sup> This and the following paragraphs are based on Berger and Udell (1998).

Banks and financial intermediaries are considered not only as channels for transmitting monetary and financial variables, but also, and more importantly, as processors of information and monitors of borrowers (Colombo and Driffill, 2003: 2). The modern theory of financial intermediation suggests that financial intermediation exists in part because of economies of scale in information production; that is, they eliminate redundancy in information production when numerous small investors pool their funds into an intermediary and eliminate the delegation costs associated with financial intermediation (Berger and Udell, 1998: 630). Economies of scale in information production hence reduce the unit agency costs of information asymmetry to financial principals. In accordance with Diamond and Dybvig (1983), by pooling the deposits of individuals with uncertain liquidity preferences, intermediaries provide a higher degree of liquidity for any given level of returns in the portfolio. Hence, they also play the role of providers of insurance services. Another function of intermediaries is their provision of risk-sharing services by packaging existing claims on behalf of investors (Diamond and Dybvig, 1983).

Griffith (2005) also critically argues that if there is an insufficiently competitive market of financial institutions, some financial intermediaries (underwriters) can exercise market power and use it for implicit price discrimination which brings them benefits. Guriev and Kvasov (2009) provide statistics on how a few "global, universal commercial and investment banks of new generation" (p. 132) command a substantial share in virtually all financial markets (represent oligopoly), including debt and equity issues, which allows them to influence their relative prices and thus the demand for one or the other financial source. This leads to positive rents for the intermediaries.

Another mechanism for responding to the problem of information inefficiency is the *creation of market institutions for the exchange of financial information*. For example, credit rating companies specialise in collecting and disseminating information about borrowers' creditworthiness, or collateral control companies monitor, control, and validate the status of specific assets (Barry and Robison, 2001).

### 3.2.2 *Practices improving incentive alignment*

Suppliers of finance are limited in their options for increasing the quality of information provided by potential borrowers; however, they can apply tools to improve borrowers' incentive structure. In response to the adverse selection problem, lenders, for example, can apply *differential loan pricing based on risk-adjusted interest rates*. Nevertheless, adjusting interest rates for risk postulates sufficient information that would allow lenders to effectively distinguish among the levels of risk of lending to individual borrowers. Therefore, information collection, processing, and monitoring are important contributions to the resolution of agency cost problems both before and after the loan contract is established (Barry and Robison, 2001).

*Extensive financial contracting by lenders* represents a non-price method of addressing potential adverse selection and moral hazard problems (Smith and Warner, 1979); it entails provisions in a loan contract such as collateral requirements, reporting requirements, performance standards, sales restrictions, constraints on additional borrowing, loan repayment upon demand provisions, insurance requirements, default penalties, and foreclosure conditions (Barry and Robison, 2001). For example, collateral requirements, that is, pledging some of the firm's assets to one debt holder, may attenuate moral hazard by reducing the incentives to switch to riskier projects or to reduce effort (Boot et al., 1991). The benefits of the collateral requirements in a debt contract to the borrower is that it allows the firm to invest in relatively safe projects and may help mitigate the underinvestment problem (Stulz and Johnson, 1985), as it may prevent credit rationing (Stiglitz and Weiss, 1981; Bester, 1985; Chan and Kanatas, 1985; Besanko and Thakor, 1987).

There are also other contractual arrangements that may be utilised by financial institutions to help counterbalance information problems such as a *loan commitment*. A loan commitment, for example *lines of credit* (one form of a loan commitment), is a debt contract that provides

revolving credit under pre-specified future terms. The loan commitment specified in the debt contract can help resolve adverse selection/moral hazard problems (Berger and Udell, 1998) since it is used as an assurance of borrowers' repayment moral and mechanism motivating efforts.<sup>8</sup> From the borrowers' perspective, such a credit arrangement can reduce transaction costs or provide insurance against credit rationing (Melnik and Plaut, 1986; Avery and Berger, 1991).<sup>9</sup>

Financial institutions also frequently use *covenant*-rich loan contracts that are intended for them to gain more control over the borrower and prevent the borrower from engaging in risk-shifting behaviour (Berger and Udell, 1998). Such covenants, which represent debt constraints attached to the debt contract, require the borrower to return to the financial institution to renegotiate the credit conditions when strategic opportunities arise, or when the financial condition of the borrower changes, thus limiting the firm's ability to change its financial condition or strategy (Berlin and Loeys, 1988; Carey et al., 1993). It is therefore expected that the strictest covenants are expected to be placed on the firms with the most credit risk and greatest moral hazard incentives (Berlin and Mester, 1993). The covenants can, however, also represent a form of a credit constraint, since the control provided by covenants may allow the lender to "hold-up" the borrower from a higher rate or other concessions, even on a positive net present value project (Berger and Udell, 1998). This situation can occur particularly if the lender does not specialise in the sector or business activity of the borrower.

Effective covenants generally cannot be imposed on small firms that do not have audited financial statements; in such cases, *short debt maturities* can be used instead (Berger and Udell, 1998).

### 3.2.3 *Practices mitigating information problems*

To lessen information problems, banks and other financial institutions extensively use *credit evaluation procedures*, which work with the relative importance of variables affecting the potential borrower's creditworthiness. Despite significant dissimilarities between the models of credit evaluation used by lenders (Barry and Ellinger, 1989), their application is widespread. Therefore, this section mainly focuses on practices that mitigate information problems and improve access to finance that can be applied by the firms, i.e. the capital market demand side.

To the extent that a firm can establish a mechanism improving information transmission to investors, it can attenuate some of the asymmetric information problems and obtain external financing (Stiglitz and Weiss, 1981). Firms with positive returns on investment that are seeking financial capital can be expected to be interested in mitigating information problems. *Signalling* their creditworthiness is one of the possible practices at the borrowers' disposal. Effective financial accounting systems employed by borrowers provide a signal of his/her creditworthiness and reduce monitoring costs to the lender (Barry and Robison, 2001). Other management practices that distinguish borrowers from their peers, and highlight unique skills and levels of productivity are: using futures and options contracts to manage risks; producing speciality crops; adopting new production and telecommunication technologies; earning advanced levels of education; and establishing a reputation for leadership in local

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<sup>8</sup> However, as Avery and Berger (1991) state, commitments can also intensify information problems. In the lines of credit contracts in which the financial institution agrees to provide credit in advance while knowing little about the borrower, the financial institution commits to terms that it would not offer after learning more about the borrower. In the case of a spot loan, the financial institution could refuse to issue the loan. In the case of lines of credit, the borrower could still, to a degree, be able to risk-shift to take advantage of the financial institution.

<sup>9</sup> Lines of credit are very flexible and thus also convenient for the borrower. They are typically used for acquiring working capital, rather than financing large and specific investments (Berger and Udell, 1998, p. 642).

communities (Barry and Robison, 2001). In the case of young and small firms, successfully introducing and marketing new products (Berger and Udell, 1998) or managing stable contractual relationships with downstream agents also provide distinguishing signals between higher and lower credit risk-borrowers to providers of finance. In public equity markets, for example, venture backing of publicly-traded firms provides positive signalling to share investors.

Another practice used in the context of attenuating information asymmetries when aiming for external finance is *relationship lending*. Forming a longer-term relationship between a firm and a lender, thus choosing a firm strategy of staying with one lender despite occasionally occurring competitive rates by competing lenders, could reduce the problem of asymmetric information in the long run and ensure that profitable investment projects will not be rejected by financiers. The monopoly-lender theory (Rajan, 1992) emphasises the fact that the information obtained by the bank (also the venture capitalist), through close monitoring and learning about the entrepreneur's ability is its private (discrete) information. Over time, these financiers then develop an informational monopoly over the firm they lend to, which enables them to earn substantial profits from their lending relationships with the entrepreneur (Greenbaum et al., 1989; Sharpe, 1990; Rajan, 1992). Despite the higher price for credit under a monopoly-lender relationship, the effect of reducing credit rationing (increasing credit availability) (Petersen and Rajan, 1994, 1995) and reducing the costs of financing transactions (Barry and Robison, 1998) makes the lending relationship attractive for the borrowers as well.

The problem of asymmetric information between the firm and the financier can be further moderated by means of credit from nonfinancial institutions to businesses, so-called *trade credit*.<sup>10</sup> When compared, for example, to lines of credit, the advantage of trade credit lies in alleviating the information problem by incorporating in the lending relation the private information held by suppliers<sup>11</sup> about their customers and introducing compatible incentives of agents in the financial contract (trade partners) (Biais and Gollier, 1997). Despite these advantages, however, the trade credit is often offered at much higher interest rates than the line of credit from financial institutions. Therefore, it is likely only to be taken in cases in which credit limits at financial institutions are exhausted (Petersen and Rajan, 1995, Berger and Udell, 1998). Ferris (1981) argues that a small amount of trade credit may be optimal from the viewpoint of transaction costs, liquidity and cash management, despite their high cost. For example, the line of credit may not be always available to small firms, because of their information opacity; therefore Trade credit as a source of mostly working capital finance is extremely important especially for small businesses (Berger and Udell, 1998). There is some evidence that as small firms age and their relationship with financial institutions matures, they become less dependent on trade credit (see Petersen and Rajan, 1995). On the other hand, Cook's (1999) findings suggest that in developing economies, trade credit delivers a signal that leads to more bank credit. This implies that the informational infrastructure and development of the banking system can influence the relationship between trade credit and commercial debt.

Trade credit represents a type of a vertical contracting, which is a contractual alternative to *vertical financial ownership*; both are forms of vertical integration. Similar to trade credit, vertical financial ownership can reduce financial constraints, but moreover, it can eliminate

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<sup>10</sup> Typical trade credit payments are due in full in 30 days, but a discount is presented if payments are made within the first 10 days (Smith, 1987; in Berger and Udell, 1998). However, in agriculture, trade credits are often arranged for the whole production cycle with payments due after expected production market realization (cash inflow). Specific form of an agricultural trade credit from suppliers is a 'green credit'. Under the arrangements of a 'green credit', agricultural business repays the credit and interests in kind.

<sup>11</sup> There is the possibility that suppliers may know better the small business' industry and production process, or may use leverage in terms of withholding future supplies to solve incentive problems more effectively (Biais and Gollier, 1997).

any residual incompleteness of the trade credit contract. Thus, vertical ownership represents an option for firms wishing to become financially integrated with companies which are not financially constrained, or become less constrained after integration due to the possibility and effect of effective diversification (Baumol et al., 1982) and technological complementarities (Bain, 1968) acting as signals of firm stability to financiers, or an increase in profits (Mahoney, 1992) which would improve a firm's repayment capabilities. The reasons for vertical integration, however, do not concern merely financial problems, but problems related to any (e.g., input or output) market transaction. "Inherent in the concept of vertical financial ownership is the elimination of contractual or market exchanges and the substitution of internal transfers within the boundaries of the firm via internal development or merger," (Mahoney, 1992, p. 559). This can be motivated by market failures due to incomplete contracting and incentives (transaction costs and property rights issues) (Williamson, 1975; 1985; Jones, 1983; Grossman and Hart, 1986; Hart and Moore, 1990) or problems of information exchange (information asymmetries and agency costs issues) (Alchian and Demsetz, 1972; Jensen and Meckling, 1976; Eisenhardt, 1988) between the buyer and the seller.<sup>12</sup>

According to transaction cost economics, vertical integration encourages specific investments and reduces the holdup problem (opportunistic behaviour) (Acemoglu et al., 2009). Acemoglu et al. (2009), in his literature review, also states that the prediction of property rights theory are not entirely ambiguous regarding the positive effects of vertical integration; it suggests that vertical integration can result in a loss of property rights to one party of a past contractual relationship and weaken incentives for exerting effort. Aghion et al. (2006) give the example that ownership, when transferred to the buyer, will enhance the buyer's ex ante incentives at the expense of the seller's, as it enhances the buyer's bargaining power ex post at the expense of the seller's. This could introduce an issue that could discourage agricultural businesses from becoming involved in vertical financial ownership, as their option to gain a principal position in the new governance structure is due to sectoral specifics and financial constraints (see Chapter 5). Trade credit or other forms of vertical contracting that facilitates firm finance could therefore be more suitable for businesses in primary agricultural production than in vertical financial ownership.

Because of the complexity of motives, vertical financial ownership should be discussed as a governance structure characterising a firm that can greatly mitigate capital market imperfections and facilitate access to finance (Section 3.3) rather than as a practice of only mitigating information problems in capital markets (Section 3.2.3). The issue of vertical integration is introduced in this section because of the logical connection to trade credit.

### *3.2.4 Institutions/regulations and public policies*

Despite the potential of financial intermediation and other market-supporting instruments/institutions in mitigating capital market imperfections, capital markets could not function effectively without precisely formulated rules in the form of law and regulations, their enforceability, and other more general institutions.<sup>13</sup> The capital market's nature of contracting about uncertain future affairs and high dependency on information, which remains greatly imperfect, calls for institutions that would introduce considerable confidence, stability and trust among the market-participating parties. The regulatory environment is intended to safeguard depositors and investors, foster competition, respond

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<sup>12</sup> For further discussion and a review of the theoretical literature on determinants of vertical integrations, see, for example, Mahoney (1992), Bolton and Whinston (1993), Aghion et al. (2006) or Acemoglu et al. (2009).

<sup>13</sup> This is in line with the views of McMillan (1997) and Shleifer and Vishny (1998), i.e., that certain market-supporting institutions will work only after other institutions have been built.



to market imperfections, facilitate effective monetary policy, and achieve other specific social goals (Barry and Robison, 2001, p. 553).<sup>14</sup>

The two most common sources of finance – debt and equity – and the respective financial market institutions require different regulations and general institutions for their effective delivery (Kriz et al., 2003). For example, banking institutions are supported by several organisations and mechanisms. There is a need for *government oversight and deposit insurance mechanisms* that would inspire confidence in individuals to provide deposits, *legal regulations* that provide for the *proper enforcement of contracts*, *accounting standards* that would enable accurate determinations of borrower creditworthiness, or *risk management tools* such as property and casualty insurance that would allow borrowers to preserve their capital assets from loss. Risk management is as important for equity as it is for debt financing. Furthermore, in the case of equity, *contract enforcement* is important because an ownership interest must be specified and protected. Another example of a legal institution that is important for equity investing is the *protection of limited liability for owners* in the form of a corporate or limited partnership and the *protection of property rights* in general. Accounting standards are also important for equity financing because those investors who provide capital must be able to properly value their share of the business enterprise's equity at any time.<sup>15</sup>

Numerous empirical studies compare the regulatory systems of capital markets and general legal systems across countries and examine their implication for investment and financing. For example, La Porta et al. (1998, 2000) find that in countries where there is a stronger general legal system, and particularly more effective protection of investors, more external finance is available. Other empirical studies that compare property rights across countries consistently show that weaker property rights are correlated with lower aggregate investment and slower economic growth (e.g., Knack and Keefer, 1995; Mauro 1995). Using a sample of firms from post-communist countries, Johnson et al. (2002) found that where property rights are relatively strong, firms reinvest their profits; where they are relatively weak, firms do not want to invest from retained earnings. In their analysis of financial institutions and markets across nineteen European countries, Aggarwal and Goodell (2010) show that some countries are bank-oriented and others rely more on equity financing. The authors analyse how this financing orientation relates to legal, cultural, and other national characteristics and find that a greater predilection for equity market financing over bank financing is associated with higher levels of power distance, concentration in equity markets, or control of corruption. A lower use of equity financing is connected to an English legal origin, greater uncertainty avoidance, and greater political legitimacy.

### **3.3 Firm characteristics**

The previously discussed capital market imperfections are not likely to have an identical impact on or be similarly level-constraining for firms of different characteristics. Also, listed practices of their mitigation could be differently suitable for various types of firms. In some circumstances, some of the capital market constraints can be anticipated to directly originate in firm characteristics such as non-optimal investment and financing decisions due to firm-internal agency costs. Thus, the intention of this chapter is to discuss firm characteristics that can be expected to relate to a systemic variability in the capital market conditions and their impacts.

#### **3.3.1 Ownership structure and agency cost of free cash flow**

An investment opportunity of a firm that is fully owned by an entrepreneur is likely resource-constrained in one point of its growth. This means that the investment opportunity to be

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<sup>14</sup> For a more detailed discussion of various forms of governmental regulation of financial markets, see Barry and Robison (2001).

<sup>15</sup> This paragraph builds on Kriz et al. (2003).

realised requires funds that exceed the entrepreneur's resources. Stiglitz (1974) and Jensen and Meckling (1976) argue that selling equity will dilute the entrepreneur's property rights and incentives. To keep incentives aligned, it will be optimal for the firm to use debt rather than equity to finance the growth. However, as Jensen and Meckling (1976) contend, once the firm reaches a high level of leverage, it stimulates risk-taking behaviour on the part of the entrepreneur (since the consequences of such actions are to a high degree shared with the financier), higher monitoring costs for the lender and higher bankruptcy costs. These risks will result in lenders demanding a premium, as well as in progressively worsening terms of debt, and will generate incentives for combining debt with equity should the continuous growth be realised. The optimal combination of debt and equity is determined by equalising the effect of incentive dilution from issuing new equity and risk distortions from issuing debt at margin (Jensen and Meckling, 1976).

Jensen and Meckling (1976) further elaborate on the issue of joint ownership resulting from the sale of equity. In their paper on the theory of the firm, they emphasise the role of ownership structure, managerial behaviour, and agency costs for firm efficiency, optimal investment decisions and finance. The focus of their study is a corporate (equity-financed) firm with ownership separated from control, which is delegated to specialised agents, i.e., managers. This separation of ownership and control is identified as the origin of firm-internal agency costs that disturb the optimality of firm decision-making (Berle and Means, 1932), including decisions on investments and their financing. Similar to the problem related to agency costs of the lender-borrower relationship, the origin of the manager-owner relationship problem is the conflicting incentive structure between the agent and the principal. As agents (managers) often do not have their own wealth at stake, they do not bear the full consequences of their actions and their objectives can be differentiated from the objectives of the principals (owners).

Information asymmetries between managers and owners, together with incomplete bonding and monitoring due to high costs provide managers with a scope for discretion that allows them to follow their own objectives. While stockholders' objective is to maximise a firm's profit, managers are self-interested individuals maximising their own utility.<sup>16</sup> The incurred costs and residual losses of this objective mismatch, and the resulting actions, are *agency costs* that are borne by principals<sup>17</sup>. The more scope given for managerial discretion, the more capacity is given to the managers for non-optimal investments and wasting free cash flow on, for example, perquisites, which results in higher agency costs of free cash flow. To avoid scrutiny of the investment projects with lower returns, managers will prefer to finance investments from internally-generated funds (earnings), while owners expecting this behaviour will favour debt which exposes management to external scrutiny by banks and reduces risk of bankruptcy (Grossman and Hart, 1982; Jensen, 1986). Depending on the effectiveness of the governance (i.e., accounting standards, disclosure obligations or institutions for property rights protection), owners' risk-acceptance versus aversion, which can be related to the form of ownership (e.g., external versus employee ownership), or owners' returns to active governance related to ownership concentration,<sup>18</sup> one form of financing will prevail over the other.

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<sup>16</sup> This can refer to excising managerial laxity, devoting insufficient attention to detail, squandering resources in non-business use, and otherwise engaging in self-serving behaviour that is not in line with the objectives of principals (Jensen, 1986).

<sup>17</sup> Jensen and Meckling (1976) define agency costs as the sum of "the monitoring expenditures of the principal, the bonding expenditures by the agent and the residual loss" (p.308). The first two components of agency costs are incurred only in the degree to which they yield reduction in cost related to residual loss. The residual loss refers to the loss in firm value due to separation of ownership and control.

<sup>18</sup> It is assumed that venture capitalists have more control over management than lenders over borrowing firms, and dispose of governance mechanisms and tools that are not available to a lender. They also can themselves become managers and thus align conflicting objectives. Small owners, on the

In summary, the agency cost of free cash flow can represent firm-internal financial constraint. Ownership or governance structures providing managers with a larger scope for discretion translate into a higher cost of financial distress for external providers of finance and could result in credit rationing. However, since such complex ownership structures are mostly chosen considering a trade-off between agency costs and economies of scale or scope, higher bankruptcy costs can be expected to result in higher interest rates for provided credit rather than credit rationing. Debt can, however, be used by owners as a tool for improving firm governance, since debt reduces the agency costs of free cash flow available for spending at the discretion of managers (Jensen, 1986).

### *3.3.2 Firm size and age*

The problem of agency costs of free cash flow related to corporate governance is often irrelevant for small firms. The single or partner ownership of small firms generating zero or low firm internal agency costs thus represents one of the few advantages of small firms in the context of finance. In the literature, the most frequently discussed problem of small firms is information asymmetries (high agency costs) of the firm's relationship to providers of external finance. The information problems in the firm-financier relationship and optimality of firm financial decisions are expected to change with firm size and age. Firm size and age can be considered jointly as an indication of different points in the firm financial growth continuum (cycle) (see Section 4.1.3). The early stages of the financial growth continuum are assigned by more severe problems of information asymmetry between the firm and the potential providers of finance, which result in greater financial constraints of the younger and smaller firms. As previously discussed, these firms do not have access to some practices, thus mitigating the effect of the information problem and resulting capital market constraints. For example, these firms require time to prove their productive and market potential and require time for building relationships with lenders and other providers of finance (Berger and Udell, 1998). In the same vein, Li and Ferreira, (2011) state that small firms typically have a shorter track record of performance and possibly lack the reputation and status to easily access financial resources. Berger and Udell (1998) argue that small business' financial options and needs both change as the business grows, gains further experience, and becomes less informationally opaque. Therefore, optimal capital structure also varies with firm size and age (see Section 4.1.3).

However, firm size and age are obviously not perfectly correlated, therefore the information opacity that is in the firm growth continuum concept mainly related to firm age is relevant to only a segment of small firms that are in their early stages of growth. Nevertheless, there are small firms participating in the capital market that have retained their small size over a long period of time, sometimes over generations. This also applies to many agricultural or rural businesses. In these cases, information problems do not result from age but, for example, less strict accounting standards or a tendency to partially trade in informal markets.

A firms' size, as related to its ability to diversify and confront market volatilities and risks, also signals stability and the ability to fulfil contracts, and thus to lower exchange uncertainty and transaction costs (Li and Ferreira, 2011). An important characteristic of the abovementioned transaction costs related to financing real capital investment is their relatively fixed nature, which implies higher unit transaction costs of externally financing smaller investments carried out mainly by small firms. As suggested by Jõeveer (2006), small firms are also more susceptible to macroeconomic and institutional conditions than are large firms.

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other hand, often have less specialised knowledge, as well as higher costs and lower returns to active monitoring. They can therefore be expected to rely on the specialisation and evaluations standards by banks for investment financing.

The presented characterisation of the firm size-related capital market conditions is not exhaustive. The theme of small-firm specifics for finance will, however, recur throughout the text in the context of the individual chapters.

### *3.3.3 Joint asset ownership and horizontal integration*

A firm has the possibility of internalising the capital market by the shift of its boundaries through vertical or horizontal integration (Mathews and Robinson, 2008). For example, business-to-business financial contracts such as trade credit can be internalised through a business merger. Firm characteristics that result from an integrated governance structure, such as economies of scale or scope, or an increase in market power, can improve the firm's market standing and its access to external finance, but also introduce specific costs of joint asset governance. The effect of vertical integration on firm finance was discussed in section 3.2.3; this section will thus inquire into horizontal governance structure.

Horizontal integration refers to the shift of a firm's boundaries (expansion of a firm through merger) at the same level in the supply chain, i.e. when the merging firms are active in the same product line or market. The sort of horizontal integration examined in this section is integration that results in joint asset ownership, where common forms include partnerships, cooperatives, and joint ventures (Cai, 2003), also sometimes referred to as business groups (e.g., Cestone and Fumagalli, 2005). Joint ownership refers to the shared residual control rights of an asset among co-owners (Grossman and Hart, 1986; Hart and Moore, 1990; Hart, 1995). One of the most frequently presented gains of horizontal integration is an increase in market power due to the internalisation of the cross-price effect on demand (Colangelo, 1995). Also, with respect to finance, a cash-poor firm becomes less sensitive to its financial constraints upon integration with other firms (Cestone and Fumagalli, 2005). Cestone and Fumagalli (2005) also show that in business groups (horizontally integrated firms) with efficient internal capital markets, resources may be channelled to either more or less profitable units. This would imply a more efficient allocation of financial resources than if financial resources are distributed by imperfect (external) capital markets with less information on their possible clients. Cai (2003) further shows that another possible advantage of joint asset ownership is its role as a "mutual commitment mechanism to promote relation-specific investments," (p. 75). However, this assumption is not made by the principal agent theory. According to this theory, joint asset ownership is suboptimal, because it: i) provides fewer investment incentives for every co-owner than individual ownership in a stand-alone firm (Hart, 1995); ii) is burdened by considerable governance costs, i.e. costs of collective decision-making (Hansmann, 1996); or iii) free-riding problems in monitoring (Alchian and Demsetz, 1972).

In spite of the ambiguous predictions of the presented theories regarding the benefits of horizontal integration, with respect to finance, it can be claimed that in cases where joint asset ownership structure evolves as an efficient response to product market and asset-specific conditions, the effect on the firm's access to external finance can be expected to be positive. Also, the resource flexibility of integrated firms, when effectively managed within the internal capital market, can result in more efficient allocation of financial resources than would be possible through an external capital market. Also other forms of horizontal governance structures, such as marketing cooperatives that increase firms' market bargaining power, or bring about economies of scale or scope that outweigh governance costs and thus stabilise the firm financial performance, can be expected to improve a firm's access to finance.

### 3.3.4 *Social capital and reputation*

Other determinants of access to finance that originate in the characteristics of an entrepreneur or a firm is social capital and reputation. The main role of social capital<sup>19</sup> in the context of finance is its effect on the relationship between the principal (financier) and the agent (finanee) in the financial contractual relationship (Barry and Robison, 2001). Guiso et al., (2004) state that, “[S]ince financial contracts are the ultimate trust-intensive contracts, social capital should have major effects on the development of financial markets,” (p. 527). If the principal has social capital with his agent, for example, through a family relationship or friendship, the agent might act in the interest of the principal without the need of a special contract to alter incentives or monitoring costs to prevent opportunistic behaviour (Barry and Robison, 2001: 532). Social capital in the financier-finanee relationship can, therefore, be expected to reduce risk from information asymmetries and incomplete contracting which could otherwise result in the risk of moral hazard and adverse selection, as well as higher transaction costs. Because of the transaction costs’ decreasing effect, social capital also increases the value of trade between the parties in the financial contract (Barry and Robison, 2001).

Given the trust-bracing and transaction cost-reducing effects, social capital can be expected to be of a diverse importance for financial relationships in various institutional settings. Empirical studies demonstrate that in economies with high information inefficiencies and low contract enforcement ability, the financial relationship will be established predominantly between social-capital-endowed parties (Guiso et al., 2004; Barry and Robison, 2001). Li and Ferreira (2011) also support this relationship with their findings showing that firms use more informal sources of financial capital when the institutional environment fails to assure efficient capital markets or other institutions.

Social capital’s effect on access to finance has been further discussed in the context of various financial instruments. Two areas in which the role of social capital has been given considerable attention are microfinance (see, e.g., Quinones and Seibel, 2000; Ito, 2003) and local venture capital (see, e.g., Batjargal and Liu, 2004; Florin et al., 2003). Both refer to situations of ‘thin’ capital markets when alternative financial capital provision highly depends on the mobilisation of local (community) sources. Findings by Florin et al. (2003), for example, imply that “social capital leverages the productivity of a venture’s resource base and provides the venture with a durable source of competitive advantage,” p. 374.

The concept of social capital in finance is closely akin to the concept of reputation. The reputation-based theory of firm finance introduced by Diamond (1989) is based on the argument that the reputation a firm obtains from a history of past debt repayment can increase trust between the firm and potential (new) financiers, and thus mitigate agency costs related to external financing. Reputation is built through observing the firm’s track records, examining its long-term relationship with its financiers and assessing its creditworthiness, even if the initial financier’s information is claimed to be private. This enables firms with a good reputation to access cheaper financing from outside investors such as public debt holders and equity holders (Diamond, 1989).<sup>20</sup>

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<sup>19</sup> There are numerous definitions of social capital. We limit the discussion to the World Bank example, which defines social capital as “the norms and social relations embedded in the social structures of societies that enable people to coordinate action to achieve desired goals” (World Bank 2000, p 1).

<sup>20</sup> Because the reputation-based theory of finance mainly concerns a reputation’s effect on large venture investment decisions, which is less relevant to agriculture, its discussion is kept short. For empirical research on the effect of reputation, see, for example, Dollinger et al., (1997), Shane and Cable (2002), or Boot et al. (1993). See, for example, Hirshleifer (1993), for the empirical analysis of the effect of managerial reputation on corporate investment decisions.

### *3.3.5 Other entrepreneur and firm-related factors*

In connection with social capital, Guiso et al. (2004) find that the effect of social capital is more prevalent among less educated people. The authors explain this observation by less educated peoples' greater reliance on trust due to their limited understanding of contracting mechanisms. Education as a determinant of access to finance was also identified in other studies (see, for example, Cressy, 1996; Baum and Silverman, 2004; Astebro and Bernhard, 2005). Moreover, entrepreneurs' race and ethnic ties (Bates, 1997; Smallbone et al., 2003) as well as gender (Fay and Williams, 1991; Verheul and Hurik, 2001) were found in empirical studies to determine availability of various channels of finance.

## **3.4 Sector and production-related factors**

### *3.4.1 Profitability and growth potential*

Profit in the context of finance represents, firstly, a financial source generated within a firm; therefore, the higher the profit, the higher the potential to apply it towards real capital investments, as well as to become subject to agency costs of free cash flow. In conditions of imperfect capital market due to high information asymmetries, for example, due to the complexity of new technologies and investment projects, or due to higher volatility of earnings, firms will rely to a higher degree on retained earnings (profits) as the cheapest source of finance than they would in a perfect capital market (Myers, 1984). Variability in the ability to generate profit among firms would represent firm characteristics; however, there can be a substantial variability in earning potentials among sectors, which can be influenced by differences in elasticities of demand for the final product, impacting the returns from investment and innovation. This condition can then influence the sector's growth potential and its attractiveness for lenders, but particularly for angel or venture capital investors (Drabenstott and Meeker, 1999).

To invest effectively, venture capitalists and private equity intermediaries need to build expertise in sectors they invest in. The associated cost of building knowledge distinguishes equity investors from lenders, who rely more on the general evaluation criteria of borrowers mostly from across sectors. Also, due to their specialised knowledge, equity investors reduce information asymmetries, which would otherwise represent risk to lenders. Due to the costs of knowledge acquisition and the simultaneous reduction of information asymmetries, equity investors invest in business projects that could be generally considered riskier, but expect higher returns on their investments (typically over 30%) than the prevailing interest rate. Therefore, they screen for investment opportunities mainly in businesses with (expected) fast growth potential. Current profitability, together with a business growth potential related to product markets and sectors can, therefore, greatly influence access to financial sources, as well as capital structure.

### *3.4.2 Asset specificity*

Asset specificity represents an issue that is conceptualised within transaction costs economics (Williamson 1975, 1985, 1988). Asset specificity relates to the resale-value characteristic of assets. Concretely, asset specificity implies that assets have little value outside the firm as they are not easily re-deployable in other business settings. The liquidation value of such assets is, therefore, near zero. Another issue related to specific assets is the potential of giving rise to the holdup problem,<sup>21</sup> which increases financial distress (risk of bankruptcy). Specific assets, however, can be a result of the firm's particular needs and are acquired because of several benefits to the performance of the firm. They can,

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<sup>21</sup> The holdup problem could be demonstrated on, for example, a party that holds a specific knowledge (human capital). Such agent could be interested in walking away on the deal or changing the terms of the original contract because of the bargaining position earned by the specificity of the knowledge (Hart and Moore, 1994).

for example, help the firm improve product quality or reduce costs, i.e., generate quasi-rents for the firm (Klein et al., 1978), enhance firm value (Teece, 1986), and differentiate its products from that of its rivals, i.e. give the firm a competitive advantage in the market (Lippman and Rumelt, 1982; Rumelt, 1991; Balakrishna and Fox, 1993; Ireland et al., 2003).

It is the limited redeployability outside the firm and the risk of opportunistic (holdup) behaviour of the financee which have the chief impact on the firm's financial decision. These characteristics of specific assets can represent factors that can exacerbate market failures, since the specific assets i) cannot be fully used as collateral that reduces the risk of information asymmetries between the firm and external financiers (increases bankruptcy costs), and ii) can provide incentives to holdup behaviour, which represents an additional investment risk (increases the risk of bankruptcy).<sup>22</sup>

Transaction costs economics addressed the issue of asset specificity-related capital market failure; it contributes to financial economics with the argument that the main financial objective of the firm is to minimise costs related to financing projects by optimising (post-contractual) governance costs related to alternative financial instruments. This governance (transaction costs) approach to the choice of capital structure is presented in Section 4.1.4.

### *3.4.3 Production/sector-specific risk and income volatility*

Risk related to production (e.g., vulnerability to uncontrollable factors such as weather) or market-related volatility of earnings is, in the context of finance, chiefly discussed in relation to risk and costs of bankruptcy.<sup>23</sup> However, the relationship between income volatility and the risk of bankruptcy is not straightforward. On the one hand, greater income volatility suggests a higher probability of large negative income shocks that lead to 'non-strategic' or 'excusable' default. On the other hand, default is likely to be punished by future (possibly) permanent exclusion from capital markets, which becomes more costly for borrowers with more volatile incomes (Eaton and Gersovitz, 1981). The model by Eaton and Gersovitz (1981) suggests that greater income volatility will result in a tendency of the firm to lower other strategic risks and thus decrease the likelihood of strategic default.

Although strategic default is a firm-level phenomenon, nonstrategic default risk can vary among sectors. For example, Scott (1980) argued that industry structure may be an important determinant of bankruptcy risk and bankruptcy costs. For instance, firms that produce comparable products and apply similar technologies may face a close level of uncertainty from product and factor market shocks. The sector-related bankruptcy risk can thus be expected to result in systematic differences in capital structure (choice of financial channels) between sectors (industries) (Balakrishnan and Fox, 1993).

Theoretical as well as empirical literature suggests that the risk related to bankruptcy costs reflects in the level of leverage (capital structure). Similar to the relationship between risk and bankruptcy costs, the relationship between the level of risk and the choice of financial sources is, however, ambiguous. One string of literature suggests that increasing risk leads to a reduction in debt financing. The rationale behind this is as follows: the higher volatility of earnings and other industry-related risk operating through bankruptcy costs are differently perceived between lenders (bondholder) and equity-holders (shareholders). Indeed, shareholders are mainly concerned with the upper portion of the probability distribution of possible performance outcomes, i.e. outcomes above the amount required for repaying debt. Bondholders, on the other hand, are concerned with only the lower end of the probability distribution of outcomes, because they receive only the interest portion specified in the debt

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<sup>22</sup> The potential for holdup behaviour can result in financial constraint since potential financiers may foresee this problem and therefore be unwilling to provide adequate resources to such firms. This would imply that some profitable investment opportunities will not be financed (Hart and Moore, 1994). Hart (1995) suggests that the holdup problem could be solved by giving the control rights of the firm to the agent or entity owning the specific resource.

<sup>23</sup> Alternative terms used for bankruptcy costs are costs of financial distress or default.

contract and none of the earnings above this payment. Riskier projects, therefore, reduce the expected payoffs to bondholders (Balakrishnan and Fox, 1993). These different interests in the distribution of earnings between lenders and shareholders not only result in an agency problem (moral hazard) and a higher price of debt (higher risk premium), but also in higher risk of liquidation of highly leveraged businesses, since bondholders are more prone to acting on a temporary decrease in earnings with premature bankruptcy and liquidation (Titman and Wessels, 1988). This suggests that a “firm’s optimal debt level is a decreasing function of the volatility of earnings” (Titman and Wessels, 1988: 6).

Another area of literature pointing to an adverse relationship between risk and leverage suggests that it is not only an issue of optimality that decreases the share of debt financing with increasing risk, it is a question of debt financing becoming more constrained (Barry and Robison, 2001; Cato and Kapur, 2006).

On the other hand, the agency theory (Jensen and Meckling, 1976; Grossman and Hart, 1982; Jensen, 1986), which deals with firm-internal agency costs related to the separation of ownership and control, implies that increasing risk could increase the tendency towards debt financing. In a corporate firm setting, income volatility and related risk increases the agency costs of mismanagement under discretion and free cash flow. This provides principals with the incentive to increase control of, or discipline managers through, preferring to debt finance (when compared to internal funding) investment projects. However, as mentioned above, this increases the risk of bank-induced premature bankruptcy. Accounting for managers likely not wanting to lose their employment, principals weigh the agency costs and costs of debt under higher income volatility and higher risk-premium charged by banks.

The general implication of the discussion as presented is that higher income volatility and other risks generate higher financing costs or external-finance rationing; therefore, measures decreasing risk are of high importance to efficient and rationally-behaving firms. Among these is the so-called coinsurance effect of diversification, which may lead to the reduction of total risk, paving the way for increased debt (Kim and McConnell, 1977). Another important tool is applying risk management measures (Barry and Robison, 2001).

#### *3.4.4 Other sector and production-related factors*

Among other characteristics of a production process or sectors that are discussed in the literature in relation to finance are capital intensity, share of variable costs, length of production cycle, capital mobility or geographic location. This section provides just a few illustrations.

Capital intensity has been analysed in relation to higher dependency and demand for external financing and as a factor of higher collateral value of assets. In this context, Titman and Wessels (1988) argue that “firms with assets that can be used as collateral may be expected to issue more debt,” which can be sold to investors in a later stage. This reduces costs of directly issuing shares, because debt represents more stable security than a share which would be offered by managers holding discretion over the true value of equity. Greater capital intensity as related to higher collateral value of assets could thus represent an advantage in the capital market. The high need of capital investments can, on the other hand, represent a problem for capital-intensive industries in constrained capital markets. For example, Acemoglu et al. (2009), find that in an environment assigned by greater costs of financial contracting, capital-intensive industries are likely to surge more intensely for possibilities of mitigating these costs, which leads them to be more vertically integrated.

Furthermore, Bierlen et al. (1998) show that firms in a sector with inventories with high variable costs and relatively short production cycles are highly susceptible to market shocks. Also, here they reacted to this problem through more frequent vertical integration and the formation of large production firms that facilitate access to external finance.

Barry and Ellinger (1997) suggest that the geographic location of a firm can not only determine its (costs of) access to a capital market, but also its reliance on geography-specific



capital markets. Although this is mainly a firm-related issue, it can also be a sectoral characteristic, such as in the case of agriculture. Barry and Ellinger (1997) find rural financial markets to be less competitive than their urban counterparts, and rural and agricultural businesses thus to be more finance constrained and to rely more on relationship lending.

#### **4. Theories of capital structure choice**

Modigliani and Miller's (1958) theory of corporate finance suggests that financing decisions may be 'irrelevant' for firm strategy. Their theorem, also known as the capital structure irrelevance principle, implies that demand for financial capital would be fully determined by demand for investment (physical capital), reflecting the firm's ability of generating positive present values of investment. However, later literature, which started with Myers and Majluf's (1984) paper, advocates that choice of financial channels may differentially affect firm value largely because of capital market imperfections. The abovementioned capital market imperfections and factors of their attenuation, therefore, not only have an impact on the level of the used and available financial capital (finance rationing), but very importantly on the costs of and hence the choice of the source of finance – debt, equity, alternative sources of finance, or their combination. The theories of firm capital structure thus deal with the question of how to attenuate the costs of financing by optimising the firms' capital structure (firm leverage) considering various firm or sectoral characteristics. The first two sections of this chapter will deal with capital structure choice in imperfect capital markets with perfect and imperfect competition, respectively. The third section reviews theories of the relationship between debt and leasing financing.

##### ***4.1 Theories of capital structure choice in imperfect capital markets with perfect competition***

A wide range of theories recognise the existence of capital market imperfections while at the same time considering financial markets (supply side) to be perfectly competitive. These theories rationalise the optimal choice of capital structure that minimises financial costs as a result of taxes, asymmetric information, conflicts of interest between management and shareholders, etc. Since the financial markets are assumed to be perfectly competitive, these costs are passed back to the firm in the form of higher cost of capital, thus providing incentives to choose an optimal capital structure (Guriev and Kvasov, 2009, p. 131). This section focuses on four main theories of capital structure choice – the trade-off theory, the pecking order theory, the agency theory approach and the transaction costs economics approach to capital structure choice.<sup>24</sup> Both theories have been developed for the context of corporate finance and hence have only a partial relevance to small- or medium-sized enterprise finance. Since these are particularly important in the context of agriculture and rural undertakings, this section also includes the theory of firms' growth continuum focused on small firm finance.

###### ***4.1.1 The trade-off theory of capital structure***

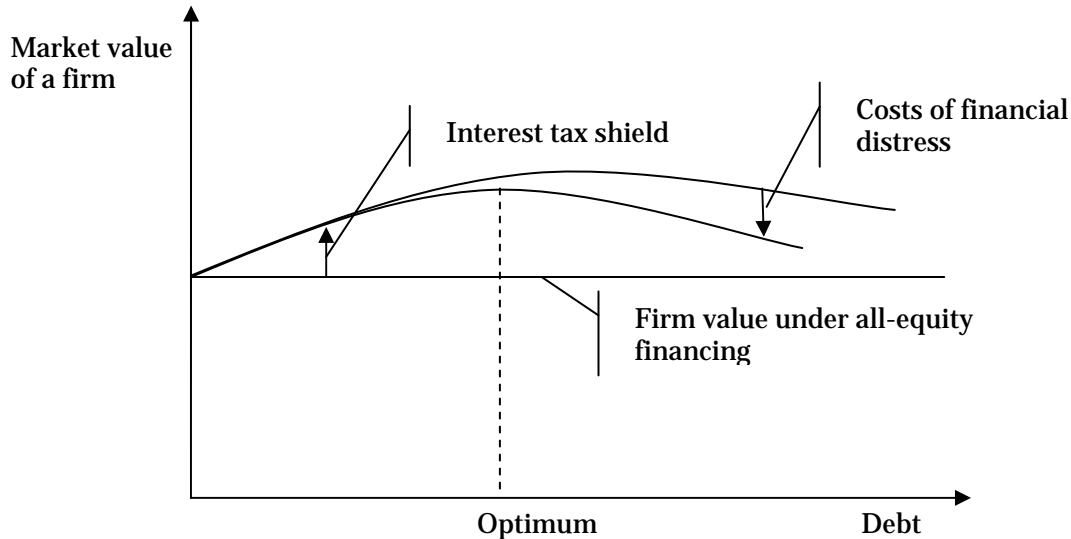
The trade-off theory considers a fusion of factors that jointly determine the firm optimal capital structure. Holding the firm's assets and investment plans constant, a firm optimises its debt ratio by considering the trade-off between the costs and benefits of borrowing (DeAngelo and Masulis, 1980; Myers, 1984). In the core of the theory are tax advantages of borrowing (*interest tax shields*) that are balanced against the *costs of financial distress* (Myers, 2003). Costs of financial distress encompass costs of bankruptcy or financial

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<sup>24</sup> The list of theoretical approaches is not exhaustive. For other theoretical models such as the market timing model (Baker and Wurgler, 2002), managerial inertia model (Welch, 2004), or the theory of capital structure adjustment speed (Flannery and Hankins, 2007), see the original literature.

embarrassment.<sup>25</sup> The firm is assumed to substitute debt for equity, or vice versa, until the value of the firm is maximised, i.e., the firm is viewed as setting a target debt-to-value ratio, which the firm gradually moves towards. Myers (1984, p. 577) depicted this relation as presented in Figure 1.

Figure 1. The trade-off theory of capital structure



Source: Myers (1984, p. 577).

The costs of financial distress are clearly endogenous. Factors of financial distress discussed in the literature on trade-off theory include firm *profitability*, *earnings volatility*, and *asset specificity*. In the context of agriculture, it would be incorrect to disregard other production risks such as weather shocks. Expected bankruptcy costs, among other costs of financial distress, arise when firm profitability declines (earnings volatility and other risks increase); the thread of these costs pushes these firms toward lower leverage targets (Fama and French, 2002). Myers (1984, p. 581) summarises the effect of these factors as follows:

1. Other things being equal, risky<sup>26</sup> firms ought to borrow less. The higher the variance rate of the market value of the firm's assets, the greater the probability of default on any given package of debt claims. Less risky firms ought to be able to borrow more before the expected costs of financial distress offset the tax advantages of borrowing.
2. The expected cost of financial distress depends not just on the probability of trouble, but the value lost if trouble comes. Specialised, intangible assets or growth opportunities are more likely to lose value in the case of bankruptcy. Firms holding tangible assets-in-place on active second-hand markets will borrow more than firms holding specialised, intangible assets or valuable growth opportunities.

The principle behind the tax benefits of borrowing and their effect on firm leverage was, among others, depicted in a model by DeAngelo and Masulis (1980). Their model represents a compromise model between other two models on taxes and debt; one by Miller and Modigliani (1961) and the other by Miller (1977).<sup>27</sup> Also, contrary to a model by Miller and Scholes (1978), which also deals with taxes' effect on optimal capital structure, DeAngelo and

<sup>25</sup> Costs of financial distress include the legal and administrative costs of bankruptcy, as well as the subtler agency, moral hazard, monitoring and contracting costs, which can erode firm value even if formal default is avoided; they thus represent costs that are caused by threatened or actual default (Myers, 1984, pp. 580-581).

<sup>26</sup> "Risk" is defined as the variance rate of the market value of the firm's assets.

<sup>27</sup> See original papers for more on these models.

Masulis's (1980) model allows the marginal benefit of the corporate tax deduction of interest to vary with leverage, and thus produce an interior optimum for leverage. The main argument behind their model of taxation effect on firm financing is the asymmetric taxation of profit and losses – the government (typically) does not subsidise losses as heavily as it taxes profits. Therefore, more profitable firms expect higher taxation than do less profitable firms, and thus also a higher payoff from interest tax shields. In the same direction of the effect of financial distress, the tax deductibility of corporate interest payment pushes more profitable firms (as well as firms with less volatile earnings) toward more borrowing.<sup>28</sup>

#### *4.1.2 Pecking order theory of capital structure*

The pecking order theory of finance (Donaldson, 1981; Myers, 1984) postulates that firms are prone to sequence financing: that is, firms finance new investment first with retained earnings, then with low-risk debts, then with higher risk debt, and finally, under duress, with equity. Myers (1984) attributes this order to costs of asymmetric information and costs of financial distress. The asymmetric information costs of financing, which pecking order behaviour results from, include the transaction costs associated with new share (stock) issues and the costs that arise because of management's superior information about the firm's prospects and the value of its risky securities.<sup>29</sup> While in the pecking order theory, financing costs overwhelm the benefit of corporate taxation of interest, as well as costs of financial distress, in the trade-off theory, they can shift the target leverage while holding the trade-off principle valid (Fama and French, 2002).

In his paper "The capital structure puzzle", Myers (1984) gave the generally-accepted pecking order story a theoretical foundation that fit with the theory of modern finance. He based the theory on a rationale of the comparative cost of various financial schemes. Until then, the economic reasoning behind the higher cost of equity was missing<sup>30</sup>; Myers found it in the Myers and Majluf (1984) model of corporate financing and investment decision under information asymmetry. The model is based on the assumption that managers have special information that impacts their financing choices and predicts which choices will be interpreted by investors as good or bad news. Investors are aware of managers' information advantages and possible risky investment behaviour. They expect that in situations, when a firm announces new stock issues, the firm's securities are likely overpriced<sup>31</sup>. This results in investors' tendency to discount the firm's new and existing securities. Managers anticipating these securities' discounts may forego profitable investments if these securities are too risky and they are the only possible method of financing the project. In avoiding the information distortion problems of issuing securities (cost of asymmetric information)<sup>32</sup>, managers prefer to finance projects with retained earnings and low-risk debt – the former involve no asymmetric information problems, and, for the latter, this problem is negligible.<sup>33</sup> Investment projects are financed by higher-risk securities only under duress, e.g., if debt is excessively costly (e.g., in case of imperfect competition on financial markets, see, e.g., Guriev and Kvasov, 2009).

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<sup>28</sup> This paragraph is built on a literature review by (Fama and French, 2002).

<sup>29</sup> Fama and French (2002) associate also adjustment costs in capital stock to what Myers (1984) calls the costs of financing (incl. costs of asymmetric information), when rationalising his pecking order theory of capital structure choice.

<sup>30</sup> Empirical observations did not seem to confirm that issue costs in themselves are large enough to surpass the costs and benefits of leverage stressed by the trade-off theory (Fama and French, 2002).

<sup>31</sup> Safest possible securities are those whose future value changes least when the manager's inside information is revealed to the market (Myers, 1984, p. 584).

<sup>32</sup> Firms do not want to run the risk of falling into the dilemma of either passing by positive net present value project or issuing stock at a price they think is too low (Myers, 1984).

<sup>33</sup> It is important to emphasise that this theory refers to corporate firms, mostly publically traded, of which reporting and disclosure obligations reduce information asymmetries between the firm and the debt financiers.

Myers (1984) suggests that the costs of issuing risky debt or equity dominate over the factors that determine the optimal leverage in the trade-off model, and argues that in a pecking order world, firms do not have leverage targets. Myers (1984) offers both a simple and complex model of the pecking order effect on firm leverage. In the simple pecking order scenario, debt level depends on the ratio of the (positive net-present-value) investment outlays and retained earnings (profitability). Debt usually grows when investment exceeds retained earnings and falls when investment is less than retained earnings. Therefore, holding investment fixed, leverage is lower for more profitable firms. In the more complex model, firms are concerned with future as well as current financing costs and investment opportunities. It is possible that firms with large expected investments maintain low-risk debt capacity to avoid either foregoing future investments or financing them with new risky securities.<sup>34</sup> Controlling for other factors, it is thus possible that firms with larger expected investments choose to invest to a higher degree in correspondence with their current retained savings capacity, and thus have less current leverage (Fama and French, 2002).

#### *4.1.3 Agency theory approach to capital structure choice*

The agency theory of capital structure choice, developed by Jensen and Meckling (1976), was explicated in Section 3.3.1 in the context of ownership structure and its relation to finance. It has been shown that in corporate firms with separated ownership and control (management), retained earnings representing free cash flow can, under managerial discretion, be used sub-optimally because of the misalignment of interests (objectives) between the managers and owners. Managers are interested in employment and high earnings plus other consumables and perquisites; they may have incentives to pursue strategies of firm size growth that signal their good performance to the owners, even if it requires non-profitable investments and likely results in losses to the owners (Baker et al., 1988; Donaldson, 1984).

These residual losses, or agency costs, that stem from managers' sub-optimal behaviour give rise to the need of aligning the agents' (managers') incentive structure with that of the principals. Agency theory finds the potential for the ex ante incentive alignments in the right choice of financial instrument. Grossman and Hart (1982) and Jensen (1986) argue that it is the use of debt that can induce managers to behave in a manner more aligned with the owners' interests. Contrary to the pecking order theory, the agency theory thus suggests that, in corporate firm settings, it is more optimal to finance investment projects through debt than from retained earnings. The role of debt lies in the additional screening of the investment project by external financiers, disciplining managers in using the available financial resources to secure regular debt interest payments and in decreasing the volume of free cash flow by redistributing it to investors (Jensen, 1986). Therefore, debt is considered as a financial instrument increasing the efficiency of firm financial resource use due to its agency costs-mitigating effect.

#### *4.1.4 Transaction costs economics approach to capital structure choice*

The transaction costs economics approach embodies a complementary approach to the agency approach to corporate finance.<sup>35</sup> Similar to agency theory, transaction costs economics considers managerial discretion and incomplete contracting, and adopts an efficient contracting orientation. Compared to agency theory, in which the individual agent is the elementary unit of analysis, in transaction costs economics, the basic unit of analysis is the transaction. Based on Williamson (1988), the most important aspect to which transactions differ is asset specificity. However, the organisational impact of this asset

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<sup>34</sup> The firm may plan to cover part of their normal investment outlays with new borrowing, but tries to keep this debt safe (close to default-risk free). The reasons for this restraint are preventing the possible material costs of financial distress and maintaining a reserve borrowing power so it can use debt in the future if needed (Myers, 1984, p. 589).

<sup>35</sup> In some more detailed issues, these theories do, however, derive contradictory predictions (see, for example, Kochhar, 1996).

characteristic is evident only in an incomplete contracting context. This joining of incomplete contracting with asset specificity provides the ramification for corporate finance.

In his transaction costs economic approach to corporate finance, Williamson (1988) treats debt and equity as alternative post-contractual governance structures rather than alternative financial instruments. This represents one of the main differences between the transaction cost and the agency approaches to capital structure decision. Transaction costs economics thus emphasises ex post contracting costs; of these, maladaptation costs which are incurred when transactions drift out of alignment (with the original contract) are the most important component (Williamson, 1985, 1988). “Reducing these costs through judicious choice of governance structure [market, hierarchy, or hybrid], rather than merely realigning incentives and pricing them out, is the distinctive transaction costs economic orientation,” (Williamson, 1988, p. 572).

The transaction costs approach states that whether a project should be financed by debt or equity depends principally on the characteristics of the assets and characteristics of debt and equity as alternative governance structures. Debt is perceived as a market-like governance structure which operates mainly based on rules (regular interest payments, liquidity and debt maturity condition, pre-emptive lender’s claims against assets in the case of bankruptcy). Of particular interest to TCE is the value of pre-emptive claims, which decreases with asset specificity, as the liquidity value of such assets is low. This reflects adversely in the terms of debt financing. In such a situation, a firm can consider equity financing, which would be in conditions of the same degree of asset specificity a more expensive financial instrument. However, this embodies a different set of governance characteristics which allow for much greater discretion; these include the equity holder’s residual claimant status to the firm or power to control and replace management (see Fama and Jensen, 1983). Due to the control characteristics, equity is considered to be a more intrusive governance structure which has better assurance properties and is more forgiving than debt (Williamson, 1988). Despite equity finance being related to higher setup costs due to its greater complexity of governance, the costs of debt financing are assumed to rise more rapidly with an increasing degree of asset specificity than costs of equity financing. Therefore, debt is reasoned by the transaction cost economic approach to be used for financing less specific (redeployable) assets, while more specific (non-redeployable) assets should be expected to be financed by equity.

In comparison to the pecking order theory, TCE does not offer a justification of the preference of using retained earnings to debt. On the other hand, the pecking order theory does not make any reference to asset specificity, but both theories conclude that “equity is the financial instrument of last resort” (Williamson, 1988, p. 585); therefore, the presented theories have complementary contributions.

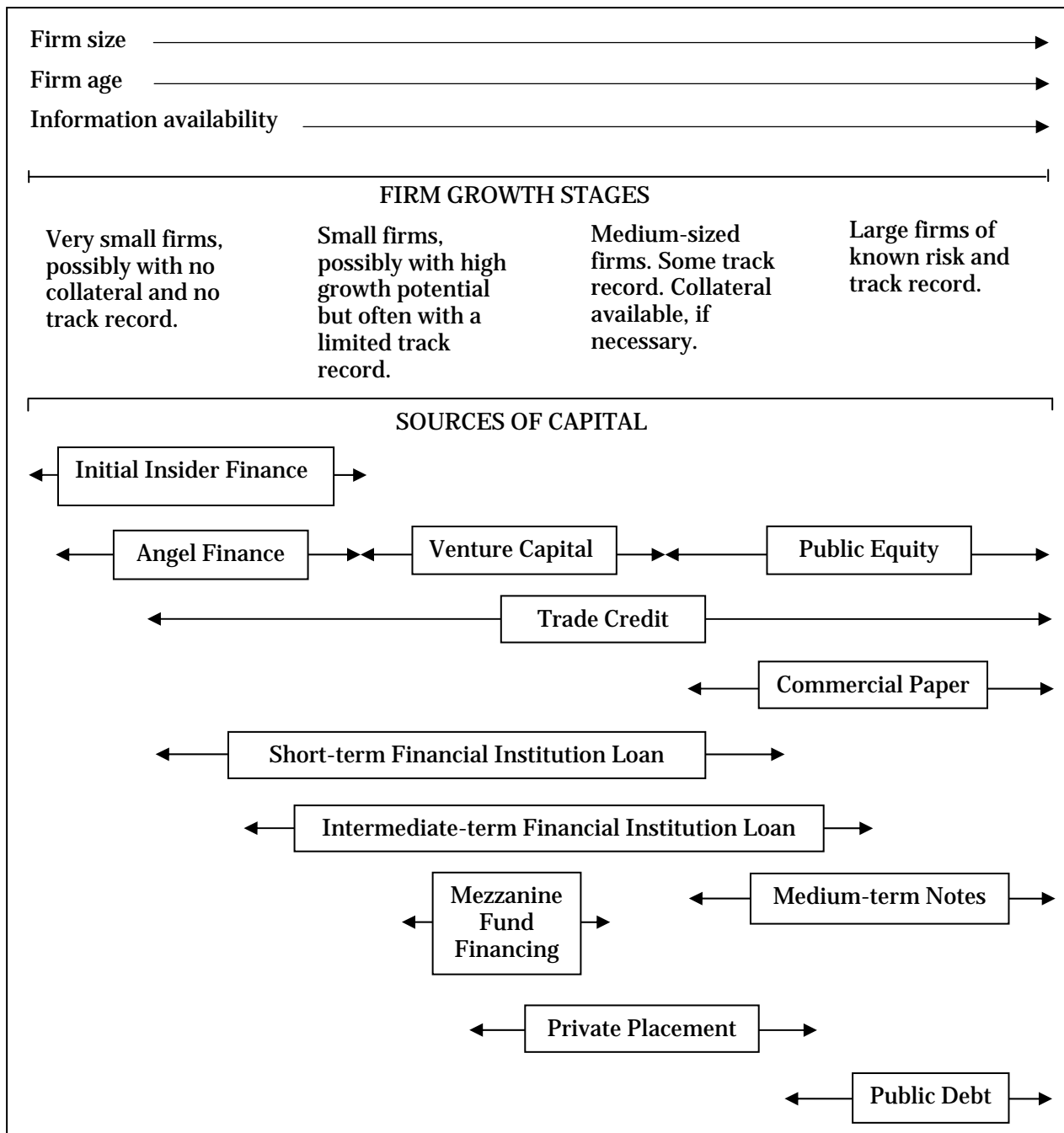
#### *4.1.5 Firm growth continuum and capital structure choice*

This section presents theories of finance optimisation at various stages of the firms’ growth continuum (cycle). It deals with the question of what type of financing options growing firms have available, and what can be expected to determine their choice of capital structure. Particular focus will be placed on the micro-foundations of small business finance, which will be representative for a large share of agricultural businesses.

As Berger and Udell (1998) suggest, optimal capital structure varies with firm size and age, which are indicative of different points in the financial growth continuum. These authors argue that small business financial needs and options change as the business gains further experience, and becomes less informationally opaque. The changing informational opaqueness related to costs of information asymmetry between the firm and potential providers of finance is the main principle behind the changing financing options and changing optimality of the firms’ choice of financial sources during the growth continuum. Figure 2 aims to provide a general idea of what type of funding becomes important at various

stages during the firms' growth.<sup>36</sup> The stages on the growth continuum at which different financial sources are demonstrated to start and finish are not proposed to be unique or fixed.

Figure 2. Firm continuum and sources of finance



Source: Berger and Udell's (1998, p. 623) adaptation of Carey et al. (1993, p. 41).

<sup>36</sup> Berger and Udell (1998, p. 622) state that, "the notion that firms evolve through a financial growth continuum is well established in the literature as a descriptive concept," not as a formally-derived concept. The authors emphasize that the growth cycle paradigm is intended to provide a general idea of the changing availability and importance of various sources of finance, but it is not intended to fit all small businesses. One of the reasons is that firm size, age, and information availability are obviously not perfectly correlated.

In Figure 2, smaller, younger and more opaque firms are to be found on the left end of the firm continuum.<sup>37</sup> It is a general perception that at its very early development stage, a firm is heavily dependent on initial insider and angel finance. The initial insider finance<sup>38</sup> are funds provided by the start-up team, family, and friends prior to and at the time of the firm's set-up, when the entrepreneur is still developing the product or business concept/plan<sup>39</sup>, and when the firm's assets are mostly intangible. In its early operational stage, a firm could have further access to trade credit, and in some cases also short-term commercial (personal) loans. The theoretical idea behind the spinosity in obtaining other external finance, especially its intermediated form, finds its grounds in the lack of transparency about the new firm, as start-up firms are argued to be the most informationally opaque (Sahlman, 1990).<sup>40</sup>

In the next stage of the firms' growth continuum, i.e. as firms grow and after their products have been successfully test-marketed, they are expected to gain access to intermediated equity finance (venture capital) and debt finance (banks, finance companies, etc.). Venture capital is typically obtained to finance full-scale marketing and production; however, it may also be used to finance product development if its costs are substantial and the new product has high prospects to be successfully marketed. Berger and Udell (1998) also state that banks or other commercial finance institutions would traditionally not lend to small businesses until their balance sheets reflect substantial tangible business assets that might be pledged as collateral, for example accounts receivable, inventory, and equipment. Eventually, if the firms succeed and remain in existence, and continue to grow (accumulate sufficient equity), they may gain access to public equity and public debt markets.

The sequencing of financial sources available to firms over their growth cycle can be examined by means of various theories. Berger and Udell (1998) mainly refer to the modern information-based theory of security design and the pecking order theory, but trade-off theory arguments are also well applicable in the context of the firm's growth continuum. The first, information-based theory, has its foundation in the consideration of costs of state verification or monitoring<sup>41</sup> (Townsend, 1979; Diamond, 1991), while the pecking order theory highlights the information asymmetry between firms and funding providers, thus leading to adverse selection (Myers, 1984; Myers and Majluf, 1984). Both theories suggest that after firms exhaust their insider finance, the next optimal financing is represented by debt. As shown in Figure 4.2, these debt contracts could include trade credit and financial institutions loans, i.e., commercial bank loans and finance company loans. However, if the required external finance amount is relatively large compared to the size of insiders' equity and other personal collateral or other wealth possibly claimed as guarantees, the moral hazard problem is likely to occur. This problem increases the default risk (moral hazard) to external creditors who are then less willing to make their funds available. Therefore, the moral hazard problem can make debt contracts rather problematic. Also, from the side of the firm and in line with the trade-off theory, the low equity (high leverage after acquiring debt)

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<sup>37</sup> The next two paragraphs refer mainly to the description of the firm's size/age/information continuum and financial sources by Berger and Udell (1998: 622-624).

<sup>38</sup> Insider finance depends clearly on the financial resources of the entrepreneur. Thus, changes in demographics and wealth distribution may affect new firm formation (Rosen, 1998).

<sup>39</sup> The business plan is often used as a sales document to attract angels finance.

<sup>40</sup> However, empirical analyses of the financial growth cycle by Fluck et al. (1998) and Berger and Udell (1998) suggest that perhaps informational opacity does not make it quite so difficult for young firms to obtain external finance, particularly debt from financial institutions, as is implied by the perceived wisdom of the financial growth cycle. The reason is the private wealth and property of the "new" entrepreneur used as collateral when applying for external debt.

<sup>41</sup> In this theory "an optimal contract depends on the principal's ability to monitor the state of nature, the action taken by the agent, and the output of the consumption good" (Townsend, 1979, p. 267), i.e. the principal's ability to reduce information asymmetries and related risks of adverse selection and moral hazard. Importantly, the monitoring ability of principles is considered by this theory variable (endogenous) and monitoring is associated with costs.

represents high financial distress (risk of bankruptcy) that could act against the firm's decision to acquire debt (and would likely outweigh the benefits of tax deductibility of interest rate on debt). In these conditions of low equity (collateral), i.e., acute risk related to moral hazard (for a lender) and high financial distress (for the firm), external equity finance, specifically angel and venture capital, becomes particularly important.

This reverse pecking order, in which angel finance and/or venture capital is often obtained before significant amounts of external debt finance, can be expected in the case of firms with high-risk new ventures (characteristic increasing moral hazard) that possess high-growth potential. This potential has to be identified by the potential venture investors. Garmaise (2001) assumes this order of firm financing if venture capitalists have superior information to entrepreneurs (or financial institutions).<sup>42</sup> The advantage of venture capitalists providing equity compared to creditors is their internal involvement in the company (e.g., through membership on the supervisory board) and the possibility of replacing managers; venture capitalists thus have lower overall costs of monitoring than creditors. Also, venture capitalists do not deal with moral hazard as such, but rather the agency costs of the principal-agent (venture capitalist-entrepreneur) relationship. These can be mitigated in numerous ways, such as structuring financial contracts, pre-investment screening, and post-investment monitoring and advising (see Kaplan and Strömberg, 2001).

The literature also offers other arguments that contribute to the explanation of the choice between external equity and external debt. For example, entrepreneurs may choose external debt in order to keep ownership and control of their firms, or they may choose external equity to help share risk with less risk-averse investors. This implies that the entrepreneur's financing decision is not only a result of rationally considering the costs of financing and returns and risks related to investment projects, but it also reflects her/his strategy regarding ownership and risk-aversion (Berger and Udell, 1998). The traditional structure of agricultural businesses characterised by the dominant position of family farms would then imply that the former determinant, i.e., retaining ownership and control over the farm, might be of particular importance for agricultural entrepreneurs (which does not need to be the case for rural entrepreneurs in general).

#### ***4.2 Determinants of capital structure choice in imperfect capital markets with imperfect competition***

The previously discussed theories of the effect of financial market imperfections referred to imperfections on the side of the firm. However, a number of studies acknowledge and analyse the capital structure effect of imperfections on the side of financial capital supply. Among the listed reasons for believing that financial markets are not perfectly competitive are financial services' requirement of reputational capital, for example, or barriers of entry from information accumulation and processing<sup>43</sup> (Dell Ariccia et al., 1999). In this context, Griffith (2005) argues that some financial intermediaries (underwriters) exercise market power and use it for implicit price discrimination, which brings them benefits. Guriev and Kvasov (2009) provide statistics on how a few "global, universal commercial and investment banks of new generation" command a substantial share in virtually all financial markets (represent oligopoly), including debt and equity issues, which allows them to strategically influence their relative prices and thus the demand for one or the other financial source. This leads to positive rents for the intermediaries. Guriev and Kvasov (2009) develop a model showing that firm equilibrium capital structure is different in competitive and concentrated markets.

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<sup>42</sup> Garmaise (2001) argues that while it seems plausible to argue that entrepreneurs have a superior informational advantage over certain aspects of their project, such as the feasibility of their projects' technology, it may be reasonable to assume that venture capitalists have superior information over a project's marketability and its operational implementation.

<sup>43</sup> Potential entrant banks will face an adverse-selection problem stemming from their inability to distinguish new borrowers from old borrowers who have been rejected by their previous bank (Dell Ariccia et al., 1999).



Their model suggests that in line with the pecking order theory, debt crowds out equity as long as financial markets are sufficiently competitive. However, as markets become more concentrated, equity financing does emerge in equilibrium. Implications of Guriev and Kvasov's (2009) model are such that a higher concentration of financial market power, *ceteris paribus*, both across countries and over time, should result in a higher reliance on equity finance. Furthermore, multiple stable equilibria may emerge; in each equilibrium, stock prices are based on fundamentals, and investors buy debt and equity based on their rational beliefs. Therefore, either equilibrium is not a temporary bubble but is sustainable in the long run.

Other papers assuming imperfect competition on financial markets are, for example, papers by Petersen and Rajan (1994, 1995), who consider an extreme-case monopolistic creditor. Their model predicts that since a monopolistic creditor is able to form long-term ties and internalise the debtor's benefits from investment, he/she performs better than the competitive market. Since the more empirically-supported case of financial market oligopoly (compared to monopoly) affects mainly public financial markets, which are only rarely accessible to agricultural businesses, these theories will not be elaborated on in further detail.

### ***4.3 Determinants of the lease- or-buy decision***

There exists a fundamental premise that leasing as a financial instrument is a result and manifestation of capital market imperfections. Ben-Yosef (1988), for example, views the "lease or buy" decision as a part of the firm internalisation and integration of market inefficiencies and transaction costs. He argues that, in practice, lease contracts are frequently customised, which suggests that leasing does not necessarily emerge in response to tax incentives. Among others, Myers et al. (1976) and Schallheim (1994), on the other hand, argue that financial leases are largely tax-driven. The rationale behind this is the tax advantage, which results from the time value of money, especially in periods of high inflation and high nominal interest rates. The time value of money refers to a net gain, which occurs when the lessor's tax rate is higher than the lessee's, and the lessor's interest and depreciation tax shields are realised earlier than the taxes paid on the lease payments.

Another string of literature deals with the relationship between leasing and debt financing. A controversy exists in theoretical and empirical literature about whether leasing and debt financing are substitutes or complimentary sources of finance. Prevailing theories in finance, including theories rationalising leasing based on tax position differences between the lessee and the lessor, suggest that leases and debt are substitutes; i.e., an increase in the use of lease financing should lead to a decrease in the level of debt financing (Myers et al. 1976; Scott, 1977; Brealey and Young, 1980; Leeth and Scott, 1989). The theoretical explanation of the trade-off relationship between lease and debt offered by Krishnan and Moyer (1994) is built on the argument that there is a trade-off between bankruptcy costs and transaction costs. First, Scott (1977) and Leeth and Scott (1989) argued that leases have lower expected bankruptcy costs for the lessor than secured debt has for the lender.<sup>44</sup> Because the expected bankruptcy costs must be compensated for by the lessee or borrower, a firm with a higher anticipated bankruptcy cost will find lease financing available at a lower cost than debt financing. On the other hand, Krishnan and Moyer (1994) identify the leases as more complex contracts than those required for assets that are owned and financed with debt. They argue that in addition to the transaction costs of establishing a lease contract, there are potentially also other transaction costs over the life of the lease. Therefore, financial leases can be expected to be associated with higher transaction costs than borrowing. A combination of these factors makes leasing a preferred financing alternative for firms with a higher potential for financial distress. However, when a firm has a low probability of

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<sup>44</sup> This relates to the fact that recovery in the case of a defaulted lease for a firm in bankruptcy to a lessor is superior to recoveries from a defaulted loan, which are limited to the outstanding balance due, plus accruals and unpaid interest (Krishnan and Moyer, 1994).

bankruptcy, the effect of transaction costs can be expected to dominate the lease-borrow decision.

Numerous empirical studies provide supportive evidence of leases and debt being substitutes (e.g., Marston and Harris, 1988; Krishnan and Moyer, 1994; Yan, 2006). Some studies, however, find contradictory results suggesting a complementary relationship between these two alternatives of financing (see, e.g., Ang and Peterson, 1984; Bowman, 1980). These findings are consistent with the tax arbitrage theory introduced by Lewis and Schallheim (1992), which suggests that leases and debt can be complimentary since a lessee can sell its tax shields to a lessor through leases. The excess tax deductions can motivate the lessee firm to increase the proportion of debt in its capital structure relative to an otherwise identical firm that does not use leasing. Thus, debt and leases can be complements. Also, a competitive lessor can diversify financial sources to reduce risk. This could be also supported by the study by Marston and Harris (1988), which shows that firms employing lease financing typically use higher levels of debt compared to firms that do not use lease financing. However, using the same data, the authors found that changes in the debt and the lease ratios for individual firms over time are inversely related, which confirms that debt and lease financing are actually substitutes.

## **5. Financial characteristics of agricultural and rural businesses**

Agriculture and entrepreneurship in rural areas are undertakings characterised by unique traits that need to be accounted for when utilising modern finance theory to explain their demand for and access to finance. Characteristics such as the relatively small-size and non-corporate structure of a majority of farm and rural businesses preclude numerous finance instruments and access to funding sources such as some issuances, or trading and risk pricing of equity capital shares in public markets<sup>45</sup> (e.g., Barry and Robison, 2001; Kriz et al., 2000). This constrained access to external (public) equity results in the farm and rural business developing greater dependence on debt financing and placing a greater emphasis on credit market facilitating instruments such as reputation, information exchanges or specialisation in agricultural finance intermediation (Barry and Robison, 2001).

Yet there are farms which have followed a fast growth strategy; they have merged or grown to a size that allowed them to be listed and their shares to be traded on the stock exchange. In these cases, access to land has often represented an important precondition of growth.<sup>46</sup> However, to the author's knowledge, no research has been done on the portfolio in which these agricultural companies identified their growth potentials, or how they achieved the critical size necessary for issuing stock – if they were backed by venture capitalists – or sufficient private wealth of the start-up owners or wealth accumulated from entrepreneurial activities in other sectors. An intuitive characteristic of these companies is their openness to disclosure, external control and joint ownership.

In general, farms can be characterised as highly capital-intensive relative to their levels of sales and cash flow and as businesses with agriculture-specific (inflexible) and weakly diversified assets. Agricultural production is further characterised by a significant lag between the purchase of inputs and the sale of outputs (long production cycle) and its vulnerability to natural conditions. Although a discussion of the financial specifics of agricultural and rural businesses would require distinguishing between small scale individual

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<sup>45</sup> The preclusion of traded equity finance applies even for larger scale corporate farms operating mainly in New Member States (NMS) of the European Union (EU) due to the lack of necessary equity-market-supporting institutions.

<sup>46</sup> This would help explain why these farms of often Western ownership operate predominantly on land in NMSs or former East Germany, where land ties are weaker due to the collectivisation past, and where land rental is mainly based on fixed-term contracts.

or family farms/rural firms and large-scale corporate (and cooperative<sup>47</sup>) farms/rural firms, due to the predominance of small scale agricultural and rural businesses, this chapter develops financial conditions mainly for small or medium-sized businesses, but also covers many size-independent financial characteristics of agricultural sector.

### **5.1 Effect of small business size**

Agricultural and rural businesses represent mostly individually-or family-owned businesses, are companies with shares that are rarely if ever traded, or have stocks that are not actively traded on major stock exchanges. Since a significant share of agricultural and rural businesses are small businesses, Section 4.1.5, which was devoted to theoretical discussion on small business' access to financial sources, applies here. The theory of the financial growth continuum suggests that small business' financial needs and options change as the business grows, gains further experience, and becomes more transparent for potential financiers (e.g. through observing successful marketing of their products). By lowering the cost of information asymmetry, firms gain access to external finance – either debt or private equity<sup>48</sup>. The higher cost of information asymmetries related to a small firm size, including the cost of state verification, monitoring or possibility of adverse selection, implies that these firms will first exhaust their insider finance. As the pecking order theory suggests, the next financing option is debt. Equity finance is considered as a more costly financing option due to investors' tendency to discount the value of new securities before the investment. This discounting can be expected to be higher in the case of agriculture due to higher risk of this type of security<sup>49</sup> related to the riskier nature of the agricultural undertaking related to production dependency on weather conditions, price volatility, or sensitivity of finance to changing sectoral policy. Equity financing also brings about the costs of more rigid information collection and reporting to private equity holders (partners, shareholders) and costs of joint ownership governance.

Because of the particularly high cost of equity for small agricultural and rural businesses, there is a legitimate concern about their access to credit. The concern is that worthwhile projects are being denied debt financing simply because they are undertaken by small firms. As many empirical studies support this concern, finance companies and other less traditional lenders, in providing funds to small businesses such as local microcredit institutions, credit unions or non-traditional venture capital institutions, become more important. Financial market segmentation with locally-based financial providers not only have the advantages of a lower information opacity, lower cost of monitoring and better grounds for establishing relationship lending, but also from bonding the provision of finance with a local interest in the operation of the small local businesses (tax to community budget, higher quality of life in the area). Yet the wealth accumulation potential in rural areas is limited; therefore, the credit supply can be expected to be affected by the liquidity constraint of such institutions. Also, the

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<sup>47</sup> Agricultural producer cooperatives would deserve separate attention. Nevertheless, they are represented only scarcely within the EU, mostly in NMS where they did not form spontaneously but exist as a heritage of pre-transition times. From a financial economics perspective, they represent a special case due to their property and decision-making rights structure, restricting their access to or reducing incentives for external investor equity. Nevertheless, more recent developments in cooperative agriculture allow for a combination of employed members (equity holders) with external investor equity. For a discussion of the financial characteristics of agricultural cooperatives, see Pederson and Gill (1990), Pederson (1998), Rathbone (1995), Rathbone and Wissman (1993), Rathbone and Davidson (1995).

<sup>48</sup> Public equity that imposes a large size condition is not considered as a financing option during this stage of the farms' growth.

<sup>49</sup> Riskier securities mean that there is higher risk that its future value will change after the manager's/farmer's inside information is revealed to the investor or the security value will be adjusted to the true (unexpected momentary) risk of the undertaking. Obviously, debt contract mostly keeps the price of borrowing constant over the contractual period, or its changes reflect general changes in the capital market rather than insider information.

constrained access to financial institutions' credit increases agricultural and rural business' dependence on costly but more accessible trade credit and leasing<sup>50</sup>. To increase the availability of debt capital for projects with higher returns, agricultural and small borrowers need (more than other businesses) to be concerned with signalling<sup>51</sup> and relationship finance, which can lower the cost and risk of lending to financial institutions.

The information opacity specific to small (and young) businesses, and thus the higher cost of information asymmetries between the firms and potential providers of finance (when compared to larger firms), which is at the core of the financial growth continuum theory, is likely not the only reason for the small agricultural and rural business' constrained access to finance. The agricultural and rural business' access to finance can be also affected by other size-related factors such as:

- high unit transaction costs of seeking credit from banks or micro-lenders, for example loan delays, travel costs, application fees, legal service costs and collateral titling costs (Key and Runsten, 1999);
- higher unit costs of dealing with downstream and upstream agents, which can impact the firm's success (contracting and stability) of product marketing, signalling growth potential to financiers;
- lower potential for entrepreneurial activity diversification and thus economies of scope (higher risk of product price volatility and bankruptcy due to input/product market shocks, weather shocks in agriculture);
- lower returns on capital due to diseconomies of scale and slower growth potential (also due to the imperfect functioning of other complementary input markets such as land); or
- small size of collateral relative to often necessary lumpy investments (resulting in high interest rates, which reflect relatively high costs faced by money lenders in sourcing funds and servicing borrowers who do not have collateral (Simmons, 2002).

Some of these points are further discussed below.

Small firms face diseconomies of size in product marketing due to high unit transaction and transport costs. The transactions involved with building contractual relationships between a small firm and downstream agent also result in higher costs for the downstream agents; these are, however, due to imperfect competition with larger scale producers and increasing corporate concentration in trading, processing, manufacturing and retailing, which is passed back to the small firms in the form of lower product prices and other lesser quality terms of trade. Additionally, smaller firms have problems of obtaining long-term and quality contracts with downstream agents<sup>52</sup> (e.g., in the food chain with processing industry), while successful product marketing (securing continuous sales and good prices) can constitute an important positive signal for potential financiers.

Downstream and upstream agents can be providers of finance who have, in comparison with other institutional providers of finance, the advantage of knowledge and specialisation in or related to the borrower's business activity.<sup>53</sup> As the financiers within the supply chain select

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<sup>50</sup> Barry and Robison (2001), for example, argue that the financial characteristics of agriculture have encouraged an extensive farmland leasing market.

<sup>51</sup> See, for example, Zhao et al. (2008) for more discussion of the role of signalling in agricultural finance.

<sup>52</sup> This is not only related to higher costs of contract enforcement, but also to higher risk of performance volatility and production risk, especially in the case of small agricultural producers whose production is subjected to natural risk beyond their control.

<sup>53</sup> Important financing for small businesses provided within the supply chain is also working capital finance and trade credit, but downstream agents can also provide longer-term capital investment credits.

the firms to be provided with finance based on performance or growth potential indications (see e.g., Van Henck et al. 2011), signalling and relationship-building will also play an important role for small farms' access to this type of funding. Even if building a relationship with a financier also improves access to credit from financial institutions, it can be expected that a relationship with an upstream or downstream agent will have a longer history, and the related specialisation of these agents reduces the information opacity of the small businesses.

Another financial concern linked to the marketing conditions for small producers relates to the increased ability of product buyers to set product and process standards and their demands for reasons of traceability (Vorley and Fox, 2004). For small farms it is very costly or impossible to reach better contractual relations with downstream agents (buyers) if securing produce or process quality requires larger (lumpy) capital investments. This negative impact of (agro-) industrialisation in the processing industry could be mitigated by forming marketing cooperatives among small producers or contract "producing" (farming) with larger producers (e.g., Key and Runsten, 1999; Reardon et al. 2000). Cooperatives not only improve access to institutional credit, but also increase the possibility of investing into lumpy product and process quality-increasing capital from shared internal funds. Within contract farming, subsidising various types of capital acquisition is used as contractual 'bonding', (Runsten, 1992) with a positive effect for both contractual sites – small as well as large producers<sup>54</sup>. The existence of the dual farm structure with a large number of small farms and a significantly smaller number but significant market share of large scale farms in many NMS would suggest small scale farms' tendency toward seeking contractual farming or forming cooperatives. This has been partially observed. However, it is also partially cramped by the pre-transition past-related distrust to the cooperative form of farming and conflicting relationships between restituted small farms and large scale farms which are mostly successors of former collective farms.

## **5.2 Effect of tradition**

Although until now they have been treated mostly jointly, there are differences between small non-agricultural businesses and small agricultural business that can be expected to have an impact on their respective financing. As Berger and Udell (1998) discuss, many small non-agricultural (non-craftsman) businesses disappear or are sold due to an owner's retirement, while farming (possibly also craftsman) traditions in the case of small farms could lead to a higher average age of small agricultural businesses compared to non-agricultural business. In many cases the agricultural tradition also leads to farms' being taken over (inherited) by their descendants, thus ensuring generational continuation. This could result in higher equity ratio, a long-term relationship to debt financiers and thus better access to smaller scale relation lending. This situation can be expected to exist in member states with mature economies (EU 15), but not necessarily in New Member States, where private individual and family farming was partially renewed first after the collapse of the socialist regime. This would then suggest that small farms in member states with mature market economies and an uninterrupted farming tradition will display lower leverage (higher collateral), thus improved access to institutional credit and a lower dependency on trade credit as well as leasing, than small farms in new member states.

The tradition of small-scale (family) farm proprietorship can also represent a constraint with regard to equity financing. Small businesses are mostly owner-managed, which relates to the owners/managers incentive to external debt rather than external equity in order to keep ownership and control in the firm and transferring ownership to the next generation (Berger and Udell, 1998; Barkley et al., 2001). Also, interest in maintaining, or reliance on the current business location, particularly in the case of agricultural businesses due to the non-transferability of land, reduces the attractiveness of investments to venture capitalists

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<sup>54</sup> A larger producer represents the subsidising side of the contract and a small producer the recipient of the capital acquisition subsidy.

(Barkley et al., 2001). It can be assumed that less traditional non-agricultural firms will be less bound to single proprietorship and hence more open to partnerships and growth by allowing private equity investment. The tendency of preserving single or family proprietorship could be also stronger in agriculture due to the expectation of higher costs of joint ownership or agency costs in the case of delegating decision-making power to a manager. This could be supported by the argument that relatively higher riskiness and complexity of agricultural production provides a greater scope for disagreements between owners of different risk attitudes and owners and managers, who are generally less risk-averse.

### ***5.3 High capital intensity***

Despite their predominantly small scale, farms (not necessarily rural businesses) are typically highly capital-intensive businesses characterised by investments in buildings, machinery, equipment, and, specific to the sector, farmland and breeding livestock. This high capital intensity is reflected in their significant share of real estate in total assets (Barry and Robison, 2001). The land's location and production alignment represents higher asset specificity, and thus a higher share of land holding, as well as a higher share of specific assets in total assets. This asset specificity then reduces the agricultural assets' irreversibility and thus its liquidity and the potential of its use as credit collateral. Barry and Robison (2001), using U.S. Department of Agriculture data, show that the U.S. farms' real estate comprises about 70% to 80% of total assets from year to year, while their inventories of livestock, machinery, crops, and other non-real-estate farm assets generally make up 10% to 15% of total assets. European Commissions Farm Accountancy Data Network data (FADN EU public database) present a similar picture. In 2008, EU farm real estate represented 60% of total assets on average for all Member States.<sup>55</sup> The EU share of real estate in total assets is slightly lower than in the U.S., but is nevertheless still high, representing lower asset liquidity when compared to other economic sectors. As Barry and Robison (2001) suggest, the high capital intensity and low asset liquidity create demand for longer-term financing and careful matching of repayment obligations with projected cash flows.

Not only are there differences in the share of real estate in total assets between the EU Member States (MS), but existing empirical studies suggest that the resulting low liquidity effect on access to finance will also vary among Member States, mainly due to differences in credit evaluation procedures and other credit market institutions. As results of the study on firms' financing policies by Colombo and Revoltella (2003) demonstrate, there are differences among EU MS regarding which assets can be used as collateral. For example, in the Czech Republic, inventories can be easier used as collateral than tangible assets. The authors suggest that this is a consequence of the divergence of book and the real value of assets characteristic for transition economies, which could thus be a problem also coming to light in other NMS.<sup>56</sup> This constraint on the acceptance of tangible assets as credit collateral, which exists in some EU countries, amplifies the financial constraining effect of the sector-specific capital structure.

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<sup>55</sup> The data from FADN EU public database show that there are significant differences in the share of real estates in total assets between EU 15 Member States and NMS. For EU 15, the ratio of real estate in total assets approximates with 67% the U.S. farms ratio of real estate in total assets. The share of real estates in total assets of 46% suggests significantly lower value of agricultural real estate in NMS than in EU 15. The EU average of this ratio is thus pulled down by the respective ratio values for NMS. Similarly, also share of inventory displays differences between EU 15 and NMS. It corresponds to 17% and 28% in total assets in EU 15 and NMS, respectively. These shares likely indicate lower value of the real estates in NMS and the need for modernisation.

<sup>56</sup> Myyrä et al. (2011) also point to differences in agricultural asset valuation among EU 15 Member States reflecting different farm business (expansion) strategies and accounting approaches or simply differences in agricultural asset markets (particularly in the land market).

#### **5.4 Low debt-to-asset ratio**

Compared to other economic sectors (and possibly partially a result of the previously-discussed factors), agriculture is also specific with regard to a relatively low range of debt-to-asset ratio (financial leverage or gearing). Pietolla et al. (2011) report the financial leverage for EU agriculture, for which the geometric average from 1989 to 2008 is 14.6%. This rate has been relatively stable over the reported period, with only a few aberrations during the recession of 1980-90 and the start of the economic crises in 2007. Due to these factors, agricultural financial leverage reached 17.9% in 2008. Pietolla et al. (2011) point to large variability in the degree of financial leverage between EU countries. In 2008 the lowest leverage was in Greek agriculture, at 0.6%, and highest in Denmark at 49%. With a nearly 50% leverage score for agriculture, Denmark is above the average leverage of non-agricultural firms in most European countries. However, the leverage average for European agricultural businesses is considerably lower than the average of European non-agricultural businesses. For example, one of the lowest average firm financial leverage ratios of 21% can be found in the United Kingdom (Gaud et al., 2005)<sup>57</sup> and the highest, with 50%, can be found in either the Czech Republic or Latvia<sup>58</sup> (Hanousek and Shanshur, 2011). The overall lower leverage in agriculture than in other economic sectors could partially be a result of different accounting standards (Barry and Robison, 2001)<sup>59</sup>, but also lower asset liquidity and specificity. Thus, agriculture is more financially constrained.

As with differences in the share of real estate in total assets, there are also marked differences in leverage ratios between the EU 15 and NMS in the level of average financial leverage (see Hanousek and Shanshur, 2011). Again, the overall higher leverage scores in NMS could reflect lower equity value and higher need for modernisation than their Western counterparts. The NMS and EU 15 countries' differences are less obvious when examining financial leverage of agriculture only, which could reflect the significant variability in agricultural production structure and related capital intensity, including 'old' member states.

#### **5.5 Low return to investment and low growth sector**

Despite the evidence of reasonable solvency, agriculture is characterised by relatively low and volatile current rates-of-return to farm assets, which are reflected in chronic liquidity problems and cash flow pressures (e.g., Barry and Robison, 2001; Zhao et al, 2008). The low rates-of-return to farm assets mainly result from inelastic food demand, which leads to rapid downward adjustment of product prices and reduces the cost advantages of new production technologies and practices. In addition to the negative effect of low and volatile return-to-capital and liquidity problems on the sector's debt-serving capacity and creditworthiness, the low returns-to-capital result in agriculture lacking high growth prospects. Instead of elaborating further on the relationship of the low growth prospects to debt financing, this section emphasises the less-discussed issue of the effect of the low growth prospect on start-up or expansion investment in agricultural and rural businesses through equity financing.

Low returns to capital and low growth prospects are also characteristic of other small rural businesses that are important for serving local communities, which suffer from diseconomies of scale and disadvantages of (i) geographic remoteness from more concentrated markets, and (ii) locations that were traditionally agricultural and offer no other or limited natural resource advantages. This characteristic of low growth prospects is then particularly

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<sup>57</sup> Gaud et al. (2005) use data from Worldscope® on 13 European countries from 1988-2000.

<sup>58</sup> The authors analyse data on seven NMS – Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland and Slovakia, which is derived from AMADEUS pan-European database from 1996-2006.

<sup>59</sup> Farms can use current market values of farm real estate compared with original cost-adjusted book values for depreciable assets in other sectors (Irwin, 1968 in Barry and Robison, 2001). Also, there is a significantly higher share of non-depreciable assets in the agricultural asset structure (Barry et al., 1995 in Barry and Robison, 2001).

important for the option of raising venture capital.<sup>60</sup> Drabentstott and Meeker (1999) identify the constrained access to equity capital, which is critical for new business start-ups and business expansion, as a major challenge for rural economic development. These authors point out that the low growth prospects are the main reason why agricultural and other rural entrepreneurs and businesses often end up turning to friends, family, or independent wealthy investors in the community (angels) to fund new ventures. Not only do larger venture capitalists screen for investment opportunities, mainly in businesses with fast growth potential and thus high returns on their investment (typically over 30%), they also tend to specialise in sectors known for these potentials, or where these potentials are expected. Motivation for this lies in the necessary build-up of expertise that private equity intermediaries have to invest in. The generally low returns on capital and low growth potential of agricultural and rural businesses thus provide low incentives for venture capitalists to acquire costly specialised knowledge for this type of undertaking, which would be necessary for effectively screening their investments. This could lead to disregarding some fast-growth agricultural or rural businesses for venture investment.

As the venture capital survey by the European Private Equity & Venture Capital Association (2002) shows, some agriculture-related sectors attract private equity investors. Biotechnology attracts a significant share of European venture investments (almost 20% of total seed and start-up venture capital investments). Agriculture, on the other hand, was supported only in its expansion stage, only by minor venture capital investment (approximately 1% of total expansion venture capital investments). Nevertheless, to brace and ensure the effects of investments in biotechnology development, venture capital investors may be motivated to invest in and oversee larger agricultural companies, where biotechnology, for example improved or genetically modified crop varieties, are extensively applied. A notable share of private equity also flows into consumer-related industries (8% of total expansion equity). New consumer preferences in food consumption and lifestyle trends that form new or yet unexhausted market potentials can influence investors' portfolio choices and represent equity financing potential for agricultural producers.<sup>61</sup> Also, by increasing energy demands, technology and policy developments have created new market growth potential for renewable energies, including bioenergy. Integrated in the conventional agricultural commodity structure, energy crop production could facilitate equity financing of agricultural businesses.<sup>62</sup> Growth-oriented agricultural producers can, therefore, open their door to equity financing by reflecting on consumer preferences and/or new technology developments, or through integration into the value (supply) chain with the potential of an investment spill-over effect.

Despite these technological and market potentials, for small agricultural and rural businesses, traditional equity financing remains inaccessible. This increases the importance of non-traditional venture capital institutions for agricultural and rural business start-ups and expansions.<sup>63</sup> The non-traditional venture capital institutions can operate in rural

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<sup>60</sup> This issue is rarely discussed in the context of European agriculture and rural entrepreneurship. In the US, there have been several attempts to research the issue of constrained access to equity market taking the form, for example, of a Rural Equity Capital Initiative funded by the USDA Fund for Rural America or "Rural Conferences" at the Federal Reserve Bank of Kansas City.

<sup>61</sup> An example of an investment company that invests in agricultural and agriculture-related businesses is Sherbrooke Capital Fund, which is dedicated exclusively to providing growth and expansion capital to emerging companies in the Health and Wellness industry. Sherbrooke encompasses investments in food production and processing companies that specialise in the production of safe, high quality foods.

<sup>62</sup> For example, Germany's first agricultural (land-cultivating) company listed on the stock exchange, KTG Agrar AG, included bio-energy production, as well as organic commodity production in its business activity structure likely for the abovementioned reasons.

<sup>63</sup> Barkley et al. (2001, p. 1) defined non-traditional venture capital institutions as "funds or programs established to address venture capital needs and/or to enhance economic development prospects in regions and industries underserved by traditional venture capital funds."



markets due to assistance or subsidies from public or private organisations, or because of goals other than maximising profits from investments such as social and economic benefits to the service area (Barkley et al., 2001). Individual investors or other funding sources<sup>64</sup> that capitalise this type of venture capital institution thus have to value economic and social returns in addition to financial returns.<sup>65</sup> There has been, however, no research done on the existence of such capital institutions in Europe.

### ***5.6 High exposure to risk***

One of the main challenges for agricultural finance is the complex risk environment that agricultural businesses are exposed to (Barry and Robison, 2001; Wenner, 2010). Among these are risks related to market price volatility, changes in consumer preferences and alternative uses of land, structural changes in the downstream industry, changing support policies, and particularly risk resulting from lengthy biologically-based and/or weather-sensitive production.<sup>66</sup> Agriculture is hence inherently a risky economic activity. The large array of uncontrollable elements affecting agricultural production, supply, and thus prices results in highly variable economic returns (Wenner, 2010).

Because of the uncertainty of the size of returns on investment projects, lenders will be reluctant to lend to agricultural business, unless modern instruments of risk management such as agricultural insurance, futures contracts, or guarantee funds that mitigate risk are utilised. Therefore, risk-related conditions place a high value on farm risk management (Barry and Robison, 2001). Depending on the farm structure in the EU member states, some types of insurance institutions could be more suitable than others. In countries where small scale farms are predominant, micro-insurance may be most suitable for reducing risk and thus facilitating access to (micro-) finance. Since there are differences in the availability or efficiency of the use of risk management instruments, as well as in farm financial literacy across EU countries, particularly between EU 15 and NMS, the high degree of agriculture-specific risk can be expected to have diverse impacts on farm access to finance across the EU.

### ***5.7 Geographic dispersion and lack of coordination of rural capital demand***

The low population and business density in rural areas represents another specific characteristic of rural undertakings with an effect on agricultural and rural business finance. The low concentration of demand for finance in rural areas results in high transaction costs for financial suppliers – including higher time and travel costs for identifying investment prospects, conducting due diligence, costs of monitoring related to distance (Brophy and Mourtada, 1999; Barkley et al., 2001; Drabenstott and Meeker, 1999), and consequently higher costs of capital for rural businesses. This rural areas-specific higher cost creates a situation where entrepreneurs may not be able to undertake viable projects (Kriz et al. 2000).

Another geography-related impediment to traditional debt as well as to equity finance, especially venture capital, is the lack of a favourable local business environment. As Barkley et al. (2001) state, the smaller size of rural markets offer relatively limited business infrastructure and human capital to facilitate the management of new companies; investors thus may have the additional expense of acquiring business services and managerial and technical personnel from outside the area or providing extensive technical assistance to

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<sup>64</sup> Based on the U.S. experience, these sources of funds can be state (country) or local government, nonprofit foundations, Community Development Finance Institutions, Small Business Administration agencies, commercial banks, or pension funds.

<sup>65</sup> For the various types of capitalisation, organisational and management structure, or the investment goals of non-traditional venture capital institutions, see Barkley et al. (2001).

<sup>66</sup> The lengthiness of agricultural production, especially crop production, increases the impact probability of weather shocks. Also, livestock production with livestock susceptible to uncontrollable diseases represents an uncertain undertaking. Farm economic results are thus highly unstable.

existing company management. In this context, Brophy and Mourtada (1999) argue that if rural areas are to gain access to equity and debt markets, they must develop effective demand for capital and express that demand to these markets by creating interactive economic networks within, among, and outside their communities. These authors strongly emphasise the need to identify competitive advantages<sup>67</sup> for businesses in rural areas through entrepreneurial clusters to generate a sufficiently high rate of (economic as well as social) return to attract investors and gain public support. The authors further claim that the market links and participation can be strengthened through joint efforts of public policy and the active involvement of private sector participants, especially the investment community and the population interested in living and working as entrepreneurs and employees in rural areas. As mentioned above, such joint efforts could be effectively used toward forming non-traditional (mainly non-profit) financial intermediation (Barkley et al., 2001).

## 6. Summary and concluding remarks

Financial capital represents means that enable the acquisition of real capital where it can be applied, with positive returns. Without access to capital markets that in turn facilitate access to external finance, firm investments could not be realised to optimal levels given the firm productive and market potentials. As is well-documented in the theoretical and empirical bodies of literature, the main role of capital markets lies in enabling the effective relocation of finance from purchasing power to productive demand, i.e., to those who can use it most profitably. However, capital markets are vastly recognised as imperfect, which leads to under-investment, under-employment of production factors and underproduction, thereby suppressing the rate of return on investments, technology adoption, and productivity (e.g., Hubbard and Kashyap 1992; Vasavada and Chambers 1996; Bierlen and Featherstone 1998; Barry et al. 2000).

Identifying the sources of capital market imperfections, as well as the factors of their possible mitigation, is therefore highly important in understanding economic development. Furthermore, exploring the characteristics of firms and production (assets), with which the severity of capital market imperfections and their effects systematically changes, facilitates a transfer of this knowledge to specific sectors, namely agriculture.

This deliverable elaborates on these issues by reviewing a wide spectrum of financial economics literature. It offers a comprehensive overview and systematisation of the determinants of financial capital use as discussed in this literature. The theoretical discussion provides verifiable arguments on why some capital market conditions provide rationally-behaving agents with great constraints on his or her economic behaviour and decision-making, and why these conditions occur. There are three relevant questions regarding the determinants of firms' financial capital use: i) What determines the demanded volume of financial capital? ii) Why does the supply of finance not perfectly correspond with this demand? In other words, why are firms financially constrained? iii) What impacts firms' choices of financial capital sources (capital structure)? The first two questions refer to the basic question of *how much* financial capital firms use and why, and the third question calls for an answer to *in what structure* firms use their financial capital.

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<sup>67</sup> Brophy & Mourtada (1999, p. 155) suggest that "the comparative economic advantage must be identified and developed by local people willing to commit time, energy, and capital to initiating and working to grow business entities dedicated to the pursuit of that advantage. This advantage can be found relative to local product and service needs, import substitutes, or exports. It may be stimulated by efforts of local state universities, trade and service organisations, local companies, and financial institutions. When local entrepreneurs discover and act upon wealth-creating local comparative advantage, they will make the first equity investments and will do so more willingly if they see the opportunity to gain access to sources of equity capital beyond local resources for growth of the equity base."

Following Modigliani and Miller's (1958) capital structure irrelevancy theorem, if capital markets were perfect, the supply of financial capital would reflect the efficient demand on real capital and the financial decision would have no impact on the value of the firm. The first question, "What determines the demanded volume of financial capital?" is therefore closely related to the question "What determines the volume of physical (real) capital (unconstrained) demand?" which is discussed in deliverable 4.2. The theoretical discussion presented in this deliverable hence focuses on the remaining two aforementioned questions. The determinants of financial capital use relevant to this deliverable are categorised in three groups: i) financial capital use-constraining factors, i.e. factors associated with capital market imperfections, ii) factors mitigating these imperfections or their impacts, and iii) firm- and production-related factors, which alter the severity of the financial constraints.

The two main sources of finance considered throughout the text are debt and equity. In some sections, financing through leasing, which is a widely-used financial source in agriculture, is also discussed. Agency theory, property rights theory, and transaction costs economics, among other theoretical approaches, have provided a theoretical basis for identifying the determinants of capital market imperfections. Asymmetric information and conflicting incentive structures between firms and providers of finance result in a higher risk of adverse selection and moral hazard, and lead to finance rationing and financial constraints to the firms. Similar effects also provide weak property rights and incomplete contracting. Explicit and implicit transaction costs, which relate to external financing, also represent a source of capital market imperfection.

The market has the capacity to respond to capital market imperfections with adjustments in governance structures and the formulation of suitable market-supporting institutions. Financial intermediation or practices such as differential loan pricing, lines of credit, collateral requirements, or other covenants incorporated in financial contracts are posited to mitigate problems of incentive misalignment. Other practices, for example, signalling, relationship lending, or trade credit as a form of vertical financial contracting, can be utilised to reduce information problems. Regulations and a general legal system are important for the efficient functioning of capital markets, as are other institutions that reduce information deficiencies. In the case of systematic financial constraints affecting particular firm groups or markets that serve the public interest, government policies might be required to assist with resolutions.

Since capital market imperfections result in costs that vary among financing options, firms need to optimise capital structure to maximise its value. The trade-off theory of capital structure suggests that a firm optimises its debt ratio by considering the trade-off between the costs (cost of financial distress) and benefits (interest tax shields) of borrowing, which vary with firm leverage (financial risk) and production-related risks (profitability, earning volatility or asset specificity). The pecking order theory of finance, on the other hand, postulates that costs of asymmetric information and costs of financial distress induce firms to sequence financing, starting with the use of retained earnings, followed with debt. Equity is considered the least preferred form of funding due to the costs of issuing new equity and agency costs that are assumed to be particularly high due to severe information asymmetries between firms and potential investors. The theory of the firm financial growth continuum further presents the changing financing options of firms in points on their growth continuum, and emphasises the constraining effect of information opacity of small firms in their early stages of growth.

The theory of firm growth continuum mentioned above is highly relevant to agriculture, where a majority of firms can fall into the category of small businesses. However, farms can be considered financially constrained not only due to their size. High capital intensity, low returns on investment and innovation, low-growth potential, a high exposure to risk, geographic remoteness, and the dispersion of demand for financial capital, as well as tradition, all represent farm or sectoral characteristics, which can limit farms in their access to financial capital. Small size, geographic remoteness and dispersion of demand for financial capital, possibly also tradition and low-growth prospects, can also characterise non-

agricultural rural businesses. As a result of these specific factors, farms and rural business mostly have a non-corporate governance structure, which precludes the availability of numerous finance instruments and access to funding sources, mainly equity, and increases their dependency on financing through retained earnings and debt.

Based on the theoretical discussion, significant variation in financing options and choices are expected between EU member states. In other deliverables, the documented differences in capital intensity and leverage support this expectation. Differences in farm sizes and governance (corporate) structures, farming tradition and length of farm-financier relationships, functioning of land markets, as well as legal and institutional environments securing contract enforceability or the protection of property rights and minority shareholders can be found between EU 15 member states and new member states. These could suggest greater credit constraints to small farms in new member states, but also greater potential for equity financing of investments in larger partnerships and corporate farms, which, to be extracted, requires the establishment of new equity market-supporting institutions.

Little is known about equity financing of agricultural and rural businesses in general. Scarce existing research, however, suggests that if rural areas were to gain access to equity (as well as debt) markets, they must develop effective demand for financial capital and communicate that demand to these markets. This also requires identifying competitive advantages for businesses in rural areas to generate a higher rate of economic as well as social returns, which would mobilise local angel and venture investors. Networking across the communities' borders could attract further investors and help to gain public support. Non-traditional financial intermediaries could play an important role in this process. Rural business could further benefit from exploring other possibilities of mitigating financial constraints, for example, by inquiring into financing options offered by vertical and horizontal contracting, diversification to reduce production risk, or more extensive application of risk management practices.

Since financial constraints greatly affect the adjustment and development capacities of agricultural and non-agricultural rural businesses, differences in capital markets and institutions across the EU could lead to increasing disparities in economic development between European regions, particularly rural regions. The deliverable, therefore, concludes by calling for empirical research on regional differences in capital market imperfections. This should focus not only on identifying sources of capital market imperfections, but also various uses of practices that mitigate these imperfections. A significant research gap is particularly found in (the potential for) the development of (rural) private equity markets. Numerous other deliverables within the Factor Markets Project respond to this research call.

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## Comparative Analysis of Factor Markets for Agriculture across the Member States

245123-FP7-KBBE-2009-3

### The Factor Markets project in a nutshell

<b>Title</b>	Comparative Analysis of Factor Markets for Agriculture across the Member States
<b>Funding scheme</b>	Collaborative Project (CP) / Small or medium scale focused research project
<b>Coordinator</b>	CEPS, Prof. Johan F.M. Swinnen
<b>Duration</b>	01/09/2010 – 31/08/2013 (36 months)
<b>Short description</b>	<p>Well functioning factor markets are a crucial condition for the competitiveness and growth of agriculture and for rural development. At the same time, the functioning of the factor markets themselves are influenced by changes in agriculture and the rural economy, and in EU policies. Member state regulations and institutions affecting land, labour, and capital markets may cause important heterogeneity in the factor markets, which may have important effects on the functioning of the factor markets and on the interactions between factor markets and EU policies.</p> <p>The general objective of the FACTOR MARKETS project is to analyse the functioning of factor markets for agriculture in the EU-27, including the Candidate Countries. The FACTOR MARKETS project will compare the different markets, their institutional framework and their impact on agricultural development and structural change, as well as their impact on rural economies, for the Member States, Candidate Countries and the EU as a whole. The FACTOR MARKETS project will focus on capital, labour and land markets. The results of this study will contribute to a better understanding of the fundamental economic factors affecting EU agriculture, thus allowing better targeting of policies to improve the competitiveness of the sector.</p>
<b>Contact e-mail</b>	info@factormarkets.eu
<b>Website</b>	www.factormarkets.eu
<b>Partners</b>	17 (13 countries)
<b>EU funding</b>	1,979,023 €
<b>EC Scientific officer</b>	Dr. Hans-Jörg Lutzeyer

