Financial development and economic growth in transition economies

*A survey of the theoretical and empirical literature*

R.T.A. de Haas*

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Abstract
Asymmetric information and transaction costs play a central role in the economic literature explaining the importance of financial intermediaries and financial markets for economic growth. Such market imperfections are especially relevant for the countries in Central- and Eastern Europe (CEE), where well-functioning markets and legal institutions are often absent and economic uncertainty is high. As a result, information asymmetries between banks on the one hand and small and medium-sized firms on the other are large, just as the external financing premium these firms are faced with. Also, in many countries, the banking sector is still in the middle of a process of privatisation, while at the same time financial markets are only in their infancy. Furthermore, the lack of adequate “rules of the game” is reflected in perverse incentives such as soft budget constraints for (former) state-owned firms. When firms default, banks are often not inclined to institute bankruptcy proceedings against them. To a large extent, this is the direct result of a lack of effective bankruptcy laws and the absence of collateral. When banks cannot credibly commit *not* to refinance bankrupt firms, moral hazard behaviour by firm managers will develop. As a result, the allocative function of financial intermediaries will be distorted, as financial funds will flow to loss-making, large (state-owned) firms, while at the same time small and medium-sized firms will fully depend on their internally generated funds to finance investments. The still deficient institutional set-up, as well as the (in certain aspects) poorly functioning financial systems in CEE, may thus hinder economic growth by allocating financial resources to the “wrong” enterprises.

* De Nederlandsche Bank, Directorate Supervision, Section Banking and Supervisory Strategies. PO Box 98, 1000 AB Amsterdam, The Netherlands. E-mail: r.t.a.de.haas@dnb.nl. Any views expressed in the paper are the author's only.
1. Introduction

In "The Veil of Money" (1949, p. 18), Pigou mentions several metaphors describing the general feelings among his contemporaries regarding the role of money. "Money is a wrapper in which goods come to you", or "money is the garment draped round the body of economic life", and the famous: "money is a veil behind which the action of real economic forces is concealed". To a certain extent, Pigou agrees that money is indeed a veil. Since money is only a means of exchange, the number of units of money is in general of no significance. According to Pigou, money is thus neutral in the long-run. However, he immediately adds that the institution of money makes a large contribution to economic welfare. First of all, it facilitates the interchange of goods and services, thereby stimulating the division of labour. Secondly, without money, individuals would only be able to "save" in the form of real goods. The introduction of money then, increases the opportunities of building up capital by means of investment. Finally, investments will increase further because money will be used as a denominated instrument for contracting loans.\(^1\) The institution of money will thus improve both the level and the allocation of real income. Following Pigou: "(…) obviously then money is not merely a veil (…)" (p. 25).

In essence, this paper will pursue in greater depth the question how financial markets as well as financial intermediaries facilitate the last two functions of money mentioned above: promoting savings and increasing investments. More specifically, we are interested whether and how the development of a financial system influences long-run economic growth.\(^2\) This question is especially material for those countries which are still in the process of creating a financial system based on the principles of a capitalist market economy. Therefore, the second part of this paper will focus in particular on the former communist countries in Central- and Eastern Europe (CEE). After a decade of gradual reform from state-planned to market economy, many of these transition economies are currently (still) building and restructuring their financial systems and the associated institutions. The urgency and direction of these reforms are clearly dependent on the influence such transformed financial systems are thought to have on future economic growth.

\(^1\) Pigou (p. 47), however, notes that loans are not essential to the building up of capital in the way that investment/saving is: "Indeed, it is quite easy to imagine a capitalist society in which no such things exist; every item of investment being undertaken directly by the person whose resources are invested (…)".

\(^2\) We define the financial system of an economy as the whole of the available financial funds, the financial intermediaries and the financial markets (Van Ewijk and Scholtens, 1996, p. 32) and financial intermediation as the process of indirect finance whereby financial intermediaries link lender-savers and borrower-spenders.
This paper will examine if and how the financial system can influence economic growth in general and economic development in transition economies in particular. The notion of asymmetric information will prove to be important in the explanation of the role the financial system can play. Section 2 will therefore first give some background information on the economics of imperfection. Using the concepts discussed in this section, section 3 will go deeper into the theoretical literature concerning the finance-growth link. Section 4 then explains that financial systems can differ substantially and gives a short review of the literature describing the (dis)advantages of different systems. Subsequently, section 5 discusses the role of institutional economics and the “legal view” in light of the debate about the relevance of different kinds of financial structure. After that, section 6 narrows the theoretical discussion down to the role of finance in transition economies. Especially the importance of soft budget constraints is emphasised. Next, section 7 and 8 treat the empirical evidence concerning the role of financial development for economic growth in general and in transition economies in particular, respectively. Finally, section 9 concludes and suggests some topics for further research.

2. Financial intermediation and the economics of imperfection

Economic agents (households, firms, countries) are unlikely to be able to cater to all their financial needs all the time. Just as well, certain agents will experience periods during which their financial funds exceed their current needs. Different economic agents will thus either have a financial deficit or a financial surplus. For the (closed) economy as a whole, the total revenues will have to equal total expenses; a deficit in a certain sector (e.g. the government) has therefore to be cancelled out by an equal surplus in another sector (e.g. the household sector). As a result, the financial funds of surplus households must be transferred to deficit households. This can be done either directly, through financial markets, or indirectly, through financial intermediaries. Both well-functioning markets and intermediaries can facilitate the intertemporal allocation of the available financial funds.

Before discussing the theoretical literature, let us first take a look at a simple example. Take the case of an entrepreneur who cannot generate enough cash flows to finance a new project, i.e. her internal financing is insufficient. This entrepreneur will have to seek outside investors to provide the necessary funds. In the absence of any form of financial system, she would

(Mishkin, 1995, p. 33). Furthermore, financial development is broadly defined as the amount of financial services, provided by the financial system, relative to the size of a particular economy.
have to approach many individual investors and ask each of them to lend her some of their savings. Such an approach would probably not be very successful. First of all, it would be very costly to approach numerous investors individually in order to scrape together the required funds. Setting this aside, the majority of the small investors would probably not be interested in lending to the entrepreneur, as they would have only very limited insight into both the quality of the project to be financed and the moral rectitude of the entrepreneur. Suppose now that there would be some kind of financial system in this economy. External financing would then probably become easier. Depending on the structure of the particular system, the entrepreneur could choose to finance her activities externally either by means of financial markets (issuing shares or floating bonds) or by negotiating a loan with a financial intermediary like a bank.\(^3\) Suppose the entrepreneur chooses to use the financial markets. When well-functioning bond and stock markets are in place and these are embedded in a sound legal and institutional environment, the entrepreneur could for instance issue (additional) shares. In doing so, she does not have to contact all the individual investors separately and ask them for their savings: she would simply announce the public offering and disclose the required accounting information to "the market". Also, after the offering, she will be required to regularly update the investors with relevant information. This will enable the investors/shareholders to control the management of the project. An alternative way of external financing would be to borrow the needed funds from a financial intermediary such as a bank. In effect, the financial intermediary simply attracts financial funds from surplus sectors and passes them through to different types of debtors. Because of this, the entrepreneur only has to contact the bank, instead of all of the individual investors. Also, the individual investors (now depositors) do no longer need to worry about the quality of the entrepreneur's project or her righteousness. This responsibility, as well as the associated risks, have now been shifted to the financial intermediary.

In the above it was made clear that external financing can be obtained both through financial markets and financial intermediaries. As a matter of fact, in many cases external financing will involve both financial markets and financial intermediaries at the same time. When

\(^3\) Of course, not all companies that are generating insufficient internal cash flow will be able to attract external financing. Both financial markets and financial intermediaries may refuse to lend financial funds to a certain company, for instance because of negative expectations regarding future cash flows. When such a firm would try to attract financial funds through issuing shares, there would be a lack of interest during the initial public offering. When the firm would alternatively try to negotiate a loan with a bank, the bank could either refuse the loan or charge a prohibitively high interest rate. In short: firms will generally perceive their budget constraints to be "hard".
issuing shares, for instance, a financial institution like an investment bank will advise the firm and carry out the actual offering of new shares. Also, individual investors may not invest directly in such shares, but may instead invest in a mutual fund, often operated by a bank. As will be made clear later on in this paper, financial markets and financial intermediaries can in many cases indeed be seen as complements, both providing certain financial services. In doing so, financial markets and financial intermediaries perform similar functions: they both improve the efficiency of the flow of funds from surplus households to deficit households. In this paper, attention will therefore be paid to both financial markets and financial intermediaries. However, since we especially want to focus on transition economies, the role of financial intermediaries will be emphasised. The reason for this is that in transition economies (and in developing countries more generally) banks have played, and are still playing, a predominant role in the financial system, especially in the early stages of development and transition. 4 Next we will therefore first shed some light on the theoretical foundations of financial intermediation.

If a system of financial intermediation functions properly, it will contribute to the intertemporal optimisation of the portfolios of both debtors and creditors. By way of its balance sheet, the attracted funds are transformed with regard to maturity, size, risk structure, and location. Because financial intermediaries trade on their own account, they are confronted with certain mismatches between their assets and liabilities. These mismatches results in different sorts of risks, such as market risk and credit risk. The financial intermediary will nonetheless be rewarded for taking on these risks by means of allowances and fees it demands for its services. It will be clear that intermediaries can only continue to exist as long as their services provide any benefits for their clients compared with direct financing. As Fry (1995, p. 294) notes, financial intermediaries must compete with other borrowers to attract funds, while at the same time competing with other lenders to buy direct claims. In the literature, the following reasons for the existence of financial intermediaries are given. Firstly, a financial intermediary can benefit from economies of scale by specialising in certain activities. 5

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4 See for instance Fry (1995, p. 351) who argues that "Commercial banks dominate financial sectors of most developing countries".

5 See for instance Diamond (1984) who stresses the importance of diversified portfolios within financial intermediaries. Such diversification ensures that the realised return on this total portfolio is, due to the law of large numbers, equal to the expected return (which is also known by depositors). In this theoretical model, the intermediary will therefore not be subject to moral hazard and monitoring by depositors will be unnecessary. This result, combined with the fact that economies of scale enable the intermediary to reduce the costs of monitoring the ultimate borrowers, brings about that financial intermediaries can be more efficient than direct financing, as total monitoring costs are reduced (where total monitoring costs equal the sum of the costs
Because of intermediaries, surplus households no longer have to search for the best ways of investing their surplus funds themselves. Instead, the financial intermediary adds all these funds together and subsequently divides them among the borrowers. In doing so, the financial intermediary can exploit economies of scale because the average costs per “product” (i.e. the transaction between deficit and surplus household) decrease.\(^6\) When in addition a single financial intermediary provides more than one product or service, synergy (economies of scope) may arise as well.

A second *raison d’être* of financial intermediaries is that indirect financing is often (but not always) quicker and more flexible than direct financing by means of financial markets. One can think of, for instance, a company that is in need of additional short-term funds to finance its inventories. In general, it will then be easier (and cheaper) to take out a loan at a bank than to issue new stock.

A third important reason for the existence of financial intermediaries is due to differences in the quantity and quality of information between different market participants, so-called asymmetric information.\(^7\) It is both difficult and costly for individual lenders to gain insight into the level of trustworthiness of borrowers and the expected profitability of their projects. It is only the borrowers or entrepreneurs themselves who have a clear(er) view of the expected return and risk-structure of their activities. An investor that is planning to grant a certain company a loan, will not be fully informed about the financial ins and outs of the company, the precise future plans of the management and its probity. In general, financial intermediaries will be better informed since they have at their disposal additional (non-public) information resulting from the long-term relationships with clients. Also, given a certain amount of available information about a project, financial intermediaries will be better at exploiting this, since they are specialised in screening and monitoring activities. Besides financial intermediaries, financial markets can make effective use of such information as well. On the associated with intermediaries determining the creditworthiness of the ultimate borrowers and the costs of lenders determining the creditworthiness of the intermediaries). However, this does not imply that the existence of financial intermediaries will also lead to a more efficient outcome on the national or social welfare level. When, for instance, both depositors and banks display some kind of moral hazard behaviour, e.g. because of a perceived high chance of a government bail-out, banks will not take properly into account the riskiness of investment projects and will accordingly start to overinvest.

\(^6\) As De Lange (1992, p. 42) notes, for intermediation to be socially efficient the economies of scale must be strong enough to overcome the costs attached to the fact that the number of contracts written will be doubled. After all, since intermediaries trade on their own account, they will have to write separate contracts with the ultimate borrowers and lenders.

\(^7\) See for instance Diamond (1984), Stiglitz and Weiss (1981), and Mankiw (1986).
international financial markets a lot of information is available about many participants and their projects. This information is eventually, by means of the interplay between supply and demand, expressed in market prices. In spite of the availability of information, especially the small and anonymous market participants will not have many incentives to collect it, and base their decisions on this sort of information. They will remain passive, hoping that other market participants will collect the information, so that they can make use of it without having to make the associated costs (free-rider behaviour). Screening and information collection by financial intermediaries can therefore lead to a better and more efficient availability of information. It should be noted, however, that the problem of asymmetric information is intrinsic to all financial transactions in a financial system, as all these transactions involve the exchange of a certain amount of funds in return for the partial claim on future income of the borrower. As long as financial markets are relatively inefficient, meaning that participants in these markets are not able to or not willing to successfully screen and monitor the borrowers in these markets, financial intermediaries can use these market failures by exploiting economies of scale and scope. Yet, some financial markets may be efficient enough to render financial intermediaries superfluous. When a country, for instance, has a large, liquid, and transparent stock market embedded in a sound legal and institutional environment, this market will be able to generate enough information by itself to help surplus households in their investment decisions. It can thus be stated that despite the fact that the problem of asymmetric information is characteristic of all transactions in the financial system, it is especially severe in rather inefficient markets, in which lenders are not able or willing to generate enough information about potential investment projects. Financial intermediaries can then play an important role in generating that information. Additionally, liquid and transparent stock markets may perform similar functions by providing the public with information about the listed companies. To sum up, it may be said that the reason for the existence of financial intermediaries lies in the fact that they reduce the costs for both surplus and deficit households in their investing and financing activities. This is the combined result of economies of scale, economies of scope, increased ease and flexibility, and last but not least the reduction of information asymmetries.

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8 The efficient market hypothesis (EMH) assumes that the prices of traded securities fully reflect all available information. In such an efficient market, all unexploited profit opportunities will be eliminated (Mishkin, 1995, p. 718). In the weak form of the EMH the available information is defined as the information that is contained in the historical price development of the securities. The semi-strong EMH considers all public information concerning the valuation of the securities as available (annual reports, press conferences). Lastly, the strong version of the EMH states that all new information about a certain security, whether publicly available or only known to a few private parties, will instantaneously be absorbed in the prices (Bouma, 1991, pp. 225-235).
The preceding is also summarised in Figure 1, in which the difference or spread between the gross costs of borrowing \((r_{\text{bor}})\) and the net return on lending \((r_{\text{lend}})\), indicates the degree of (functional) inefficiency of the financial system. When lenders and borrowers would have to search for attractive investment and financing opportunities, the net return to lenders would deviate substantially from the gross costs to borrowers. Lenders would subtract searching costs, as well as a risk and liquidity premium from the interest rate \(r^*\). At the same time, borrowers would add search costs to their interest expenses. Since lending is a function of the net return on savings and borrowing is a function of the gross costs of borrowing, the total volume of lending and borrowing (and therefore investing) is equal to \(I_{\text{spread}}\). The wedge or spread around \(r^*\) might, however, be reduced by the introduction of a financial intermediary, which exploits economies of scale and scope in matching borrowers and lenders, and reduces risks by means of diversification, at the same time providing liquidity. As financial intermediation increases the efficiency of the financial system, the amount of investments gradually increases from \(I_{\text{spread}}\) to the optimal level \(I^*\). However, \(I^*\) will not be reached because (1) the intermediary will at least have to cover its own costs and will therefore have to keep a minimum wedge between the interest rate charged to borrowers and the interest rate paid to lenders and (2) there will always be some transaction costs involved for both lenders and borrowers. However, the more efficiently the financial sector carries out its intermediating role, the greater the volume of investment will be (Fry, 1995, p. 296).

Although, as explained above, financial intermediaries have the advantage over (small) individual debtors and creditors with regard to the collection of information, they still have to deal with the problem of asymmetric information. As mentioned earlier, one can speak of asymmetric information when two parties who would like to enter into a contract do not possess the same information. This leads to two important kinds of information problems: adverse selection and moral hazard. Adverse selection is a problem that occurs before a contract is written and is the result of the fact that not only reliable but also unreliable agents want to borrow money. It is important to note that ex ante an investor cannot know exactly

\[9 \quad r^* \text{ should be interpreted as the "neo-classical" market interest rate on direct lending (no financial intermediation), when risk premiums and transaction costs are non-existent.}\]
which borrowers are trustworthy and which are not. The information concerning the moral rectitude of the borrower is only known to the borrower himself: there is a lemon’s problem à la Akerlof (1970). When the investor fixes its lending rate on the observed average trustworthiness, it will become financially unattractive for trustworthy borrowers to get external financing at this relatively high interest rate. In this way, the possibility exists that only the relatively untrustworthy borrowers will be prepared to borrow. Although these borrowers may seem attractive for the investor in the short-run, they can influence the profitability of the lender negatively in the longer run. This is the case since the borrowers that are prepared to pay the relatively high interest rate, only think they can manage to pay this interest rate because they invest in relatively risky projects, having a high expected return. As a result of adverse selection, investors will thus start to finance riskier projects, which in the longer run can put pressure on profitability. Besides adverse selection, a second problem related to asymmetric information is moral hazard, which appears after parties have entered into a contract. The core of the moral hazard problem consists of the fact that the borrower can start to behave in ways that are not in line with the goals of the lender. However, this lender will not be fully informed about the behaviour of the borrower. For instance, the management of a company that has borrowed money from a bank, can decide to henceforth only invest in very risky projects. When these risky projects prove to be successful, the (high) profits will be partly distributed to the management. However, when the projects fail, it is chiefly the bank that will be faced with losses.

Although financial intermediaries try to reduce capital market imperfections, they are confronted with informational asymmetries themselves as well. Of course, they will try to guard themselves against both adverse selection and moral hazard as much as possible. A natural way of doing so is by collecting (additional) information about clients, thereby reducing the problem of asymmetric information. Adverse selection can for instance be reduced by a better (ex ante) screening of clients. In that way the bank will be better informed about the trustworthiness of potential clients. Another way of preventing adverse selection might be to ask clients to post collateral, thereby providing them with the right incentives. Yet, banks will not always be able to make a (completely) clear distinction between “good” and “bad” borrowers. When this is the case, credit rationing might become rational. Credit rationing will occur when the bank notices that a higher interest rate might actually lower its expected return. This results from the fact that the bank will on the one hand receive a higher interest rate while, on the other hand, the increased lending rate will initiate a process of
adverse selection and/or moral hazard, which eventually deteriorates the quality of the lending portfolio. Stiglitz and Weiss (1981) show that higher interest rates induce firms to undertake projects with lower probabilities of success but higher payoffs when successful. This implies that there exists an interest rate which maximises the expected return to the bank. A profit maximising bank will therefore not increase its lending rate indefinitely, but will choose to start rationing its credit instead when the lending rate reaches a certain - optimal - ceiling. When this results in a situation in which an individual cannot borrow as much as he or she wants at the going interest rate, one speaks of type 1 credit rationing, as opposed to type 2 credit rationing when, among identical borrowers, some who wish to borrow are able to do so, while others are not (Blanchard and Fischer, 1989, p. 479). This will make it impossible for borrowers to have unlimited access to credit, even when they are willing to pay a higher interest rate.\(^{10}\) Additionally, Stiglitz and Weiss (1981) show that banks faced with excess credit demand (due to their credit rationing policy) will probably also not be able to profitably expand their credit supply by simply asking more collateral. The authors show that, since wealthier individuals are likely to be less risk averse, borrowers who are willing to put up the most collateral will also be willing to take the greatest risks. Increasing collateral requirements can then lower the bank’s return, if these negative adverse selection effects more than offset the earlier mentioned beneficial incentive effects of higher collateral requirements.

Capital market imperfections will thus only to a certain extent be reduced by the existence of financial intermediaries. A disturbed functioning of the price mechanism can hamper the functioning of financial intermediation as well and with that the economy at large. Credit rationing, as in the seminal contribution by Stiglitz and Weiss (1981), was already mentioned. In light of this, De Lange (1992) cites the example of an exogenous decrease of the savings rate. In a standard neo-classical framework, the resulting shortage of financial funds will lead to a higher interest rate, which will ensure that the decreased savings will eventually be matched by decreased investments, thereby creating a new equilibrium. However, in the case of equilibrium credit rationing by financial intermediaries, the decreased savings will possibly not lead to a higher lending rate, given that this will not maximise profits. In that case there will be no new equilibrium between aggregate savings and investments. Additionally, one could think of so-called perverse savings effects resulting from a tight monetary policy.

\(^{10}\) Keeton (1979) and Stiglitz and Weiss (1981) introduce the notion of equilibrium quantity rationing. Even when there is no adverse selection a higher lending rate can lead to decreasing revenues. This is the case when
Stiglitz (1998) argues for instance that the tight monetary policy and the resulting higher interest rates during the Asian-crisis, as prescribed by the IMF, might have induced Asian households to lower their savings. The background of this perverse reaction would be the fact that the increasing interest rate raises households’ doubts about the health of the national banking system. Higher interest rates will reduce the net worth of the banks, and because of the asymmetry of information between depositors and bank management regarding the quality of banks’ balance sheets, depositors might (correctly or wrongly) expect banks to fail. This implies that households’ expected net return on savings can actually decline when interest rates are raised, and savings will accordingly decrease.

Besides trying to reduce adverse selection, financial intermediaries also try to minimise moral hazard. A way of doing so is by increasing the commitment of their clients, for instance by only partly financing a certain project or by extending credit only in a number of payments. In doing so, entrepreneurs will be less inclined to behave themselves in a risky way. After all, when the lender discovers, by means of monitoring, that the borrower is guilty of investing in risky projects, he can decide not to grant the remaining instalments. Also, when entrepreneurs have to partly finance their projects with money of their own, their incentives to engage in risky activities will be subdued, since their own money is now at stake as well.11 Leland and Pyle (1977) show that the willingness of an entrepreneur to finance a project (partly) with funds of her own can be interpreted as a signal of the quality of the project concerned.12

the higher interest rate increases the default probability of (all) debtors. The higher monitoring costs that are linked to this can (more than) offset the increasing interest income.

11 This beneficial incentive effect of a higher proportion of own funding, as stressed by Leland and Pyle (1977), is comparable to the above mentioned beneficial incentive effects of increasing collateral requirements as set out by Stiglitz and Weiss (1981). Insofar collateral requirements mitigate moral hazard behaviour by borrowers, and thus make the problem of asymmetric information less acute for lenders, moral hazard behaviour may be seen as (partly) endogenous in nature. After all, when an economic shock, for instance an interest rate increase, lowers the net worth of (potential) borrowers, the problem of asymmetric information will be more critical for lenders. See for instance: Mishkin, 1992.

12 This implies that the financial structure of a company influences its value, which means that the Modigliani and Miller theorem (1958) does not hold. Jensen and Meckling (1976), in their seminal article on the theory of the firm, stress the importance of agency costs associated with the separation of ownership and management of a (joint-stock) company for the financial structure of such a company. When the manager of the company does not fully own the company, that is: part of the equity is “outside equity”, her operating decisions will maximise her own utility, but will not automatically maximise the profit of the firm. Besides these agency problems associated with outside equity, the authors also distinguish the incentive problem linked to debt-financing: high leverage will stimulate the manager to invest in relatively risky projects. Ultimately, the financial structure will be such that total agency costs, i.e. the sum of the agency costs associated with both external equity and debt financing, will be minimised.
Above it is discussed how both financial markets and financial intermediaries can make sure that funds are being transferred from surplus to deficit households. It will be clear that from the viewpoint of Walrasian general equilibrium, there is no reason for the existence of financial intermediaries. After all, in a standard general equilibrium model, in which an imaginary auctioneer organises the market, transaction costs are zero and information is perfect. Introducing financial intermediaries would be useless, as there would be a conflict between them and the fictitious auctioneer. In a similar fashion, the financing of activities is irrelevant in the Modigliani and Miller-theorem (Modigliani and Miller, 1958). In such a system, the optimal allocation of economic goods is only determined by the expected (marginal) costs and revenues of the economic activities. Thus, in this framework as well, there is symmetrical information and no transaction costs. This implies that the existence of financial intermediaries can only be explained when the idea of perfect capital markets is abandoned. Only when market imperfections, such as transaction costs and incomplete and asymmetric information are acknowledged, the existence of financial intermediaries can be explained.\(^{13}\) For only when some market imperfections exist, it is possible that market participants will not keep their promises while at the same time not all future contingencies can be fixed by contract. Adverse selection and moral hazard will be the result. How then, will these asymmetric information problems characteristic of imperfect financial systems, influence firm behaviour?

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\(^{13}\) De Lange (1992, p. 15) mentions three necessary conditions for financial intermediation to be economically feasible: (1) there must be an imperfection in the public capital market, (2) a technology must be available that can (partly) resolve this market imperfection and (3) this technology must to some extent exhibit economies of scale or scope.
A large body of both theoretical and empirical literature has focused on the effect of asymmetric information and the related incentive problems on the costs of external financing of firms.\footnote{See Hubbard (1998) for an overview.} When capital markets are imperfect there will exist a gap between the cost of external and internal financing of firms: external financing will contain a “lemons premium” due to adverse selection.\footnote{Akerlof (1970). Note, however, that Robinson (1952, p. 85) already implicitly refers to problems of asymmetric information when writing that “A firm will generally be more ready to finance its own investment than outsiders are to finance it. It charges itself, so to speak, a lower risk premium than it would have to pay for outside funds”. Also, note that firms operating in perfect and complete markets perceive the opportunity costs of internal funds to be the market interest rate at which they can borrow and lend freely. The level of investment in such a frictionless neo-classical market will be determined solely by expected future profitability and the user cost of capital, i.e. the uniform market interest rate, whereas there is no role for the amount of internally generated funds specifically or the financial structure of the firm in general. The Modigliani and Miller-theorem (Modigliani and Miller, 1958) is thus consistent with and provides a basis for such a neo-classical theory of investment.} Hubbard (1998) shows that in a framework with informational imperfections, entrepreneurs will be faced with increasing shadow costs of uncollateralised external financing.\footnote{With uncollateralised financing defined as financing exceeding the net worth of the firm.} This leads to underinvestment relative to a setting with no information costs. This simple framework concerning the demand for and supply of capital to an entrepreneur is graphically represented in Figure 2. The first best capital stock, $K^*$, is determined by the intersection of the downward sloping demand curve (D) and the perfectly elastic supply curve (S). The supply curve is taken from a neo-classical investment model and is a horizontal segment at $r$, the market real interest rate. In this simple case, the firm perceives the opportunity costs of internal funds to be the market interest rate, and it can borrow and lend at that interest rate in the capital market: internal and external financing are perfect substitutes. This picture changes, however, when asymmetric information is taken into account. Suppose for instance, that an entrepreneur with net worth $W_0$ wishes to undertake a certain investment project. The entrepreneur, who invests his resources equal to $W_0$ in the project, is confronted with an agency problem. Due to asymmetric information, outside lenders (the principals) cannot adequately judge the moral rectitude of the entrepreneur (the agent) and will therefore modify the financial contracts in order to minimise moral hazard related opportunistic behaviour.\footnote{In line with Hubbard (1998, p. 195) we note that apart from moral hazard, adverse selection may have similar consequences for the cost of funds and investment.} The result of this is that actual investment ($K$) is dependent on the entrepreneur's net worth (and may be lower than the desired level of investment $K^*$), since an increase in the invested net worth reduces the entrepreneur's incentive to misallocate funds (see footnote 11). In Figure 2 the S-curve is horizontal up to the level of the entrepreneur's net worth $W_0$. In this range, there is no agency problem and the lender's
required rate of return is equal to the market real interest rate. However, when the borrowed funds exceed the net worth of the borrower, the lender wants to be compensated for the information costs (e.g. monitoring costs and costs related to remaining moral hazard problems). Therefore, the S-curve is upward sloping to the right of $W_0$ and this slope reflects the information costs in uncollateralised financing.\(^{18}\) In the presence of information costs, the S and D-curves will intersect at $K_0 < K^*$. The capital stock is thus smaller than in the optimal "neo-classical" case, implying underinvestment. An increase in net worth from $W_0$ to $W_1$ will increase the available funds by shifting the supply-of-funds curve from $S(W_0)$ to $S(W_1)$ and will thus reduce underinvestment. In sum, the theoretical framework by Hubbard shows that capital market imperfections may lead to lower investment by certain groups of firms, i.e. firms which face high information costs and have low net worth. Empirical work has provided many indications that due to the gap between internal and external financing costs, investments of firms that face capital market imperfections will be dependent on changes in their net worth or internal funds.\(^{19}\)

In the end, the extent to which financial intermediaries may contribute to economic growth depends on the allocative efficiency of the system of financial intermediation. According to De Lange (1992) this is determined by the monitoring and screening technology that is available to the intermediaries. The better these technologies, the better intermediaries will be able to assess the creditworthiness of potential clients and the more the market of financial intermediation can be characterised as a perfect market. Depending on the screening possibilities, a system of financial intermediation can be classified somewhere on the theoretical continuum between completely perfect and completely imperfect intermediation. The extent to which these more or less efficient intermediaries contribute to allocative efficiency, and thereby possibly to economic growth, now depends on the following. Firstly, there is a reduction in transaction costs which is the result of the central screening of potential debtors (these costs also depend on the available screening technologies). Moreover, without

\(^{18}\) Remark that this kinked supply curve is consistent with the so-called pecking-order hypothesis (Myers and Majluf, 1984; Myers, 1984). This hypothesis poses that firms which are confronted with an external finance premium due to asymmetric information, will finance investments preferably with internally generated funds (or "internal equity"). When internal funds prove to be insufficient, debt will be preferred over external equity. In short: firms prefer internal funds over debt, and debt over external equity ("shares"). This pecking order thus assumes that asymmetric information problems are most severe for relatively risky financial instruments, such as shares. However, in the example based on Hubbard (1998), no explicit distinction is made between external debt and external equity financing, only between internal financing and external financing. See also De Haan (1997) for empirical evidence of pecking order behaviour in the Netherlands and Mayer (1990) who shows that in his sample of developed countries internal funds were by far the main source of investment financing.

\(^{19}\) See for instance Fazzari, Hubbard, and Petersen (1988) and Hoshi, Kashyap, and Sharfstein (1991).
financial intermediaries households and entrepreneurs will only be able to invest in accordance with the amount of funds they have saved or the amount of profit they have retained. This will be the case since investment projects that are in itself profitable, but of which the minimum amount of needed funds is larger than each individual savings amount, will not be able to be executed. Also, the better the screening and monitoring, the better intermediaries are able to reduce problems of asymmetric information and thereby the external financing premium of certain groups of firms. Lastly, it is important to what extent financial intermediaries allocate the received savings to efficient investment opportunities. All in all, financial intermediation can thus lead to a more (Pareto) efficient intertemporal allocation, which can speed up the development of an economy.

According to Levine (1997), economic growth is being influenced by the development of the financial system in five different ways. Firstly, more savings will be mobilised. Secondly, the better supply of information will lead to a more optimal allocation of resources. Thirdly, there will be better opportunities for monitoring managers. Fourthly, it will become easier to trade, hedge, diversify and combine risks. Fifthly, transactions concerning goods and services will be facilitated. All these advantages of having a sound financial sector can, according to Levine, contribute in two different ways to a higher per capita economic growth. Firstly, these advantages will lead to a higher capital stock (capital accumulation) and secondly they can speed up technological development. In this perception, a higher allocative efficiency leads to an increasing propensity to both save and invest, which stimulates capital accumulation and technological renewal. In the end, this will boost economic growth. The above is summarised in Figure 3.

It can be questioned to what extent increased savings actually lead to higher economic growth in the long-run, as Levine (1997) argues. When one examines the theoretical influence of increased savings (as a result of a better financial system) on the long-term economic growth, one will have to chose a certain growth model. This choice will prove
to be of decisive importance for the way in which financial development influences long-term economic growth. Section 3 will go deeper into this matter.

Summarising, it can be stated that an adequate system of financial intermediation can, by means of a higher allocative efficiency, increase the net yield on savings while at the same time decrease the gross costs of investments. This will eventually lead to both higher savings and investments (Fry, 1995). However, not only financial intermediaries but also well developed financial markets can play the role of an intertemporal efficiency enhancing mechanism. The problems of high transaction costs and informational asymmetries that will be present in an economy with no or only a very rudimentary financial system, can therefore theoretically be diminished by both the development of well functioning public financial markets as well as the emergence of financial intermediaries. 20 We will analyse the characteristics of such market-based and bank-based financial systems later on in this paper.

3. General theories of financial system development and economic growth

As was made clear in section 2, the emergence of a well functioning financial system can, at least from a theoretical viewpoint, result in a more efficient economic allocation. This automatically raises another question: does an efficient financial system also result in higher economic growth? In other words: is there any theoretical reason to assume that countries that possess a well functioning financial system also exhibit a higher growth rate and thus will be able to attain a higher wealth level? The relevance of this question is immediately clear if one thinks of the practical implications for the way in which emerging markets in general and transition economies in particular should shape their financial and economic policies.

This section pays attention to the relationship between financial development and economic growth in both a simple neo-classical and an endogenous growth framework.

First, we will analyse whether a higher propensity to save has any influence on economic growth within the neo-classical growth theory. In such growth models total economic

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20 Allen and Santamero (1998) argue that in recent decades, transaction costs and asymmetric information have become less important, resulting in financial intermediaries focusing more on risk trading on new futures and options markets (in order to lower participation costs for their clients). Their view is in accordance with that of Allen and Gale (2000), who stress that financial institutions and financial markets are complements rather than substitutes. However, whereas it is true that problems related to transaction costs and asymmetric information have become less important for some types of borrowers, especially large and transparent multinational corporations, many medium and small firms still rely on financial intermediaries to overcome such market imperfections. This may especially be true in a changing and uncertain economic environment, as is the case in many transition economies.
production is dependent on the amount of capital, the amount of labour and technological progress. When one assumes that the labour force grows at a certain constant rate and there is no technological progress, per capita production will be dependent on the per capita capital stock. It is important to note that there is no linear relationship between both variables: the law of decreasing marginal returns ensures that the (marginal) increase in per capita production will diminish more and more as the per capita capital stock increases.\textsuperscript{21} This implies that an increase in economic growth due to higher savings and therefore a higher per capita capital stock can only be temporary. The economy will move towards an equilibrium or steady state in which the savings are just equal to the depreciation, which means that net investments are zero. In this steady state the ratio between capital and labour is constant and so is the per capita income. The growth of the national income will equal the labour force growth. Thus: in neo-classical growth theory, the growth of the national income is in the long-run independent of the savings rate. A higher savings rate will lead to a higher economic growth only in the short-run. However, in the long-run steady state the per capita capital stock has increased, which implies that the level of the per capita income has increased as well. In a neo-classical model, financial development, by leading to a higher savings rate, has only a temporary positive effect on economic growth.

However, besides affecting the savings rate, the development of financial markets and/or financial intermediaries can also stimulate technological progress. This is the case when the improvement of the financial system gives innovative projects a better chance to be carried out. According to McKinnon (1973) and Shaw (1973), for instance, decreasing financial repression by the government may not only lead to higher savings, but also to more efficient investments. When a government abolishes interest rate ceilings, this will result in a higher level of investment due to increased savings (which were formerly restrained). However, also the efficiency of aggregate investments may increase, due to the fact that entrepreneurs with low-yielding investments are deterred from actually carrying out their projects. Both effects may interact and result in higher economic growth instead of only a higher level of per capita income.

\textsuperscript{21} This capital stock will increase as long as the savings exceed the depreciation: in that case there are net investments.
In a neo-classical framework, the equilibrium growth rate of per capita income is equal to the growth rate of technological progress.\textsuperscript{22} The growth rate of the total national income is thus equal to the sum of the growth rate of the workforce and the growth rate of the technological progress. Long-term growth is thus only possible when there is continuous technological development, by which per capita income will be able to increase constantly. Even when the savings rate remains constant, the higher income due to technological improvement implies that total savings increase and will exceed the depreciation. The resulting net investments will increase per capita capital stock and therefore per capita income. When financial development thus leads to a permanent process of (exogenous) technological progress, economic growth within the neo-classical framework can also increase in the long-run.

The above means that the theoretical relationship between financial development and economic growth is not as straightforward as one would think at first sight. If financial development leads to a higher allocative efficiency this will result in both higher savings and investments. The neo-classical framework shows however that this will only have a temporary effect. In this framework financial development can only stimulate long-term economic growth by boosting technological progress. Since technological development in a neo-classical framework is regarded as an exogenous variable, financial development can not be a determinant of long-term growth \textit{inside} a neo-classical framework. Levine (1997) poses that financial development by means of the earlier mentioned five channels, leads to a more efficient economic allocation. Each channel would be able to influence economic growth through two channels: stimulating a higher propensity to save and boosting technological progress. The above analysis made clear that within the neo-classical framework, financial development can only lead to higher long-term growth through the second channel mentioned by Levine: a faster (exogenous) technological progress. While a more efficient allocation can also lead to higher savings, this will only have a temporary effect on economic growth due the decreasing marginal returns. Besides neo-classical growth theories an important category of growth theories are the so-called endogenous growth theories. Next, we will discuss what role the development of the financial system can play in this category of theories.

Endogenous growth models refer to models in which long-term economic growth is an endogenous variable and not, as in neo-classical growth models, completely dependent on

\textsuperscript{22} Technological progress implies that the amount of output per unit input increases.
exogenous variables like technological development. Economic growth depends for instance on technology spill-overs, income distribution, and institutional factors. In such a model financial development cannot only influence the *level* of the national income but also the (long-term) *growth* of it. Pagano (1993) uses a simple endogenous growth model, the AK-model (Romer, 1989) to shed light on the relevance of financial intermediation. The model is reproduced below, both graphically and in equations (where "t" is a time index):

1. \( Y_t = AK_t \)
2. \( \Delta K_t = K_{t+1} - K_t = I_t - \delta K_t \)

Combining (1) and (2) leads to:
3. \( I_t = K_{t+1} - (1 - \delta)K_t \)
4. \( \phi S_t = I_t \) where \( S_t = sY_t \)

Then:
5. \( \Delta K_t = \phi s(AK_t) - \delta K_t \)

and finally\(^{23}\):
6. \( g = A\phi s - \delta \)

Crucial to this theoretical framework is that there is a linear macroeconomic production function (1), which means that there are no decreasing marginal returns, but constant returns to scale instead: the used framework assumes that when the capital stock \( K \) increases, the national income \( Y \) will continually increase with the factor \( A \). This assumption of constant returns to scale is frequently used in endogenous growth models because such models often explicitly allow for the existence of human capital, which is much less likely to exhibit decreasing returns to scale than other forms of capital. Equation (2) shows that net investments equal gross investments \( (I) \) minus the depreciation of the capital stock. Pagano (1993) assumes that a certain proportion of the national savings, the size of \((I - \phi)\), is “lost” within the process of financial intermediation (“savings leakage”). This means that the

\[^{23} g = \frac{K_{t+1}}{K_t} - 1 \text{ and } I_t = K_{t+1} - (1 - \delta)K_t \quad g = \frac{I_t}{K_t} - \delta \]
\[ \Leftrightarrow g = \phi sY_t \frac{K_t}{K_t} - \delta \Leftrightarrow g = A\phi s - \delta \]
financial intermediary uses some percentage of each monetary unit of savings that it receives for executing the financial intermediation process, thereby leaving less than the total amount of savings for financing investments. Equation (4) shows that only the fraction $\phi$ of total savings can therefore be used for making gross investments.

In practice, the above mentioned loss or leakage will be expressed as a spread between the credit and debit rates or the charging of certain commissions. Depending on the fierceness of the competition on the market for financial intermediation, it can also be seen as a form of X-inefficiency. In this respect one can think for instance of excessive fringe benefits for the management of the financial intermediaries. The essence of the introduction of the loss of a certain amount of savings during the intermediation process is that when financial intermediation is carried out more efficiently, both the amount of savings and the amount of investments will increase. Fry (1995) elucidates this by identifying a higher efficiency of the process of financial intermediation with a lower spread around the market interest rate (see Figure 1).

As can readily be seen from Figure 4 and Equation (5), net investment ($\Delta K$) equals gross investment minus the depreciation of the existing capital stock. Because there are no decreasing returns to scale, the model shows that unbounded growth is possible as long as net investments are positive. Finally, the steady-state rate of economic growth ($g$), is given by Equation (6), or, alternatively, by the difference between the angles $\beta$ and $\gamma$ in Figure 4. In this model the (exogenous) process of financial intermediation can thus influence the long-term economic growth in three distinct ways. Firstly, the proportion of savings that is actually being used for investments ($\phi$), and thus not lost during to the process of financial intermediation, can increase. Secondly, the marginal productivity of capital ($A$) can rise. This can be the result of the fact that financial intermediaries improve the economic allocation by financing more projects with a relatively high marginal productivity of capital.24 Thirdly, financial intermediation can stimulate the propensity to save ($s$).25

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24 Economic growth will thus increase because the following two functions of financial intermediaries: (1) the collection of information to evaluate alternative investments projects, and (2) the prompting of savers to riskier and more productive projects by offering them the opportunity to diversify their risks.

25 Murinde (1996) empirically tests the theoretical model of Pagano (1993), focusing on the relevance of financial markets for economic growth in a group of Pacific Rim countries. The results lend only weak support to the model's theoretical prediction that financial markets have played a significant role in the growth process of these economies (only the stock market played a significant role).
From the above it appears that various economic theories see financial development as a variable that can influence economic growth in very different ways. In neo-classical growth models, financial development leads, by way of bringing about a higher efficiency, to higher savings and investments and therefore to a higher, but only temporary, economic growth. Financial development can however also influence long-term economic growth by stimulating (exogenous) technological development. Within endogenous growth models, financial development can also influence long-term economic growth by way of increasing the savings rate. Thus, in these models, long-term economic growth is determined within the model. In both models, however, financial development is exogenous in nature. In effect, the main difference is that within the neo-classical model the production function is characterised by decreasing marginal returns of capital. Additionally, Pagano's (1993) endogenous growth model differs in that it incorporates a savings leakage. In this model, the quality of the (exogenous) financial intermediation can have an effective influence on economic growth by means of influencing the savings leakage, the marginal productivity of capital and the endogenous propensity to save. As a matter of fact, the total of the savings leakage and the marginal productivity of capital in this endogenous growth model are commensurable with the exogenous technological development within a neo-classical model.

The above raises the question if the development of the financial system does in effect lead to an increase of the savings ratio. One could for instance think of a situation in which financial intermediaries start to offer more advanced insurance products, thereby inducing households to save less by way of precaution. Total savings will then drop, which will have a negative influence on economic growth. In a similar way, advanced possibilities for risk reduction by means of diversification could also slow down total savings. Thus, even though within an endogenous growth model, financial development may stimulate economic growth both by ensuring that a higher proportion of total savings is transformed into investments and by increasing the average productivity of these investments, on the whole, economic growth may still be slowed down as a consequence of a more than off setting negative influence on the savings ratio. This means that in theory, financial intermediation can also exert a negative influence on economic growth. Jappelli and Pagano (1992) describe how the development of a system of financial intermediation, and especially the liberalisation of the financial system,

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Obvious, this question bears more relevance for an economy that would resemble an endogenous growth model then it would for an economy that would function according to the framework of a neo-classical growth model, in which the savings ratio would only have a temporary influence on economic growth.
can restrict economic growth. The authors argue that the existence of liquidity constraints guarantees a relatively high savings rate by forcing young households not to dissave as much as they would like. When the markets for consumer credit and mortgage debt are subsequently liberalised, the savings rate can decrease. Arestis and Demetriades (1997) point to the fact that higher demand for funds and the resulting rising interest rates can increase the previously described problems of asymmetric information, after these problems had first decreased as a result of the improvements in the financial system. The liberalisation of certain financial markets and interest rates can thus put a downward pressure on economic growth. This means that certain ways of government influence in the financial system can reduce problems related to moral hazard and adverse selection. The higher financial stability that may result from this public intervention may subsequently lead to higher economic growth.27

Financial liberalisation may not only lead to lower savings rates, it can also bring along with it periods of financial instability. This will be especially likely when markets are liberalised without providing the economy with a sound regulatory and legal framework. It may be questioned to what extent the financial instability that results from a period of rapid liberalisation has consequences for long-term economic growth. In an endogenous growth model long-term growth will suffer if the financial instability on certain financial markets is accompanied by decreased savings.28 If, in addition, higher interest rates cause problems due to asymmetric information, this can be seen as a negative technological shock, which can put the brakes on economic growth both in an endogenous and in a neo-classical framework. According to Levine (1997), the negative consequences of financial instability for economic growth are only of importance in the short-run: “(...) Although financial panics and recessions are critical issues, the finance-growth link goes beyond the relationship between finance and shorter-term fluctuations”.

27 In this way of thinking, which stresses the importance of market failures due to information asymmetries, certain forms of governmental restraints, e.g. interest rate ceilings, could thus have economic advantages. In more standard economic theories, see for instance McKinnon (1973) and Shaw (1973), financial repression by the government is seen as disrupting because it would decrease the relative size of the financial sector and therefore economic growth.

28 This line of reasoning implies that it can be rational for a government to not fully liberalise financial markets in order to maintain households’ liquidity constraints at a certain level. This would ensure that these households are forced to save more than they actually would like to save, which means that more credit flows to firms instead of households. Preserving households’ liquidity constraints can therefore, by way of higher savings, stimulate economic growth.
Concluding, it can be stated that economic theory provides numerous leads pointing to a positive link between financial system development and economic growth. However, this causal relationship is from a theoretical viewpoint not at all self-evident, but depends instead on both the choice of a particular growth model and the way in which the qualitative and quantitative improvement of the financial system influences the savings rate. Financial development, itself dependent on a country's legal environment, might thus stimulate long-term economic growth. Nevertheless, it is also possible that there is reverse causality, in which higher economic growth (also) leads to a better financial system. If a theoretical model is constructed in which there are fixed entry costs in the system of financial intermediation, higher economic growth will mean that the relative importance of such costs, which are in fact a form of entry barriers, will decrease. The number of financial intermediaries and their clients will then subsequently increase. Such an expanded system of financial intermediation will be able to allocate more capital to efficient investments, thereby stimulating economic growth. In such a framework economic growth and financial development are thus determined simultaneously (Greenwood and Jovanovic, 1990). Therefore, in the end, the question of the relationship between financial development and economic growth appears to remain an empirical one. Section 6 and 7 will go deeper into these empirical matters.

4. **Banks and markets: which is better?**

Until now, only the general theoretical links between financial development and economic growth have been discussed. No explicit distinction was made between the different ways in which financial systems can develop. However, in the economic literature an often made broad distinction is that between market-based and bank-based systems. The financial systems of the United States and the United Kingdom are for instance dominated by well-functioning and liquid financial markets, while the financial systems in France, Germany and Japan are characterised by a strong role of financial intermediaries. Many countries’ financial systems are characterised by some mixture of elements from market-based and bank-based financial systems and can therefore be placed somewhere on the continuum between these extremes. As was briefly mentioned in section 2 already, both the development of more efficient and transparent financial markets and the development of financial intermediaries can alleviate

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29 A well-known proponent of this reverse causality is Robinson (1952, p. 86) who claims that “where enterprise leads, finance follows”. In this view, the financial system simply develops in reaction to increased demands for
problems associated with asymmetric information between direct lenders and borrowers. One could wonder whether both forms of financial development have a specific influence on economic development. Unfortunately, both neo-classical and endogenous growth models usually make no explicit allowance for the form of financial system development. In this section we will discuss the distinction between market-based and bank-based financial systems and how both types of systems influence economic growth.

In the economic literature, there exists a lively debate between so-called "banketeers" and "marketeers" (Levine, 2000) about what exactly is the optimal financial structure for a given country. According to "banketeers", a bank-based system is the best answer to problems of asymmetric information and transaction costs. They stress for instance that financial intermediaries act as delegated monitors (Diamond, 1984) and in so doing reduce information-costs. Also, banks reduce transaction costs, which may ease risk sharing and pooling, thereby facilitating savings mobilisation. Furthermore, they can reduce liquidity risk (Diamond and Dybvig, 1983) and may help in exerting corporate control. Markets, in contrast, are confronted with free-rider problems, since acquired information is quickly revealed through price changes. Also, stock markets can be ineffective in exerting corporate control as liquidity and the associated low exit costs reduce the incentives for thorough corporate governance. This reasoning implies that a bank-based financial system would seem to be the best way to stimulate economic growth.

In contrast to the banketeers, the so-called "marketeers" stress the disadvantages of banks and the benefits of (stock) markets. They argue that banks, being debt issuers, may have an inherent bias towards prudence, thereby slowing down innovation and growth. On the other hand, stock markets may stimulate the acquisition and dissemination of information, especially in the case of innovative products (Allen and Gale, 2000). Furthermore, they stress that the often very strong links between banks and their debtors may have negative effects. Banks could for instance extract rents or prevent outsiders from removing inefficient managers (Levine, 2000). Lastly, well-developed and liquid securities markets may promote savings mobilisation just as well as banks do (Demirgüç-Kunt and Levine, 1996). As may be clear from the above discussion, both "marketeers" and "banketeers" see financial intermediaries and financial markets as substitutes, rather than complements.
However, Levine (2000) and Allen and Gale (2000) stress the fact that both financial markets and financial intermediaries provide growth enhancing financial services and that the exact composition of the financial system -i.e. the financial structure- is therefore only of secondary importance: banks and markets complement each other. Allen (1993) and Allen and Gale (2000) argue that market-based systems and bank-based systems deal with information in different ways. Markets aggregate different pieces of information very effectively, whereas financial intermediaries exploit economies of scale in gathering information by serving as a delegated monitor (Diamond, 1984). The latter function might be called for when there is general agreement in the economy about what information should be collected and how it should be interpreted. This is the case when industries are competitive, production cycles are relatively short, and technology is constant. However, when there are large divergences between investors about what information should be collected and how it should be interpreted, they “agree to disagree” and competitive markets might be needed. This is for instance the case when there is a lot of uncertainty, for instance during the development of new and innovative technologies. Such technologies are hard to evaluate and entrepreneurs might have a hard time in persuading investors to lend them money to make the necessary investments. As we saw in section 3, both in the neo-classical and the endogenous growth model, technological development is an important driver for economic growth. The way in which market-based and bank-based financial systems influence technological innovation is therefore an important link between the type of financial system and economic growth. In situations where relevant information is scarce and agents have diversified opinions, markets may have considerable advantages. Although many agents have to collect information about the new technologies, which is rather inefficient, the advantage lies in the fact that every investor can decide to invest according to her own view about the new technologies.31 This means that at least some of the innovative projects will get financed. Repetition of the decision-making process is valuable in this situation, as opposed to a situation à la Diamond (1984) in which there is wide agreement about optimal policies. In such a case of plentiful relevant information and converged beliefs about certain kinds of projects, financial intermediaries may serve as a delegated monitor, thereby economising on information acquisition. Because there is wide agreement, this kind of delegation works well, and a bank-

30 We define financial structure as the relative importance of financial intermediaries versus financial markets in a certain financial system.
31 When there is a certain level of disagreement, investors may be unwilling to provide their funds to a delegated monitor (financial institution), because the probability that this institution makes an investment decision which is deviant from their own perceptions about the quality of the investment projects is too high.
based financial system might be advantageous. Allen (1993) is therefore of the opinion that CEE-countries, which are still in the process of building basic industries with well-known technologies, should for the time being concentrate on developing bank-based financial systems.

Such recommendations are consistent with earlier academic work stressing the positive role of (universal) banks in developing countries, starting with seminal work by Gerschenkron (1962, 1968) who examines the role of banks in German economic development. Gerschenkron emphasises the key role of banks in both supplying capital and in substituting for entrepreneurial deficiencies. Goldsmith (1969) studies the financial development of a large group of countries and concludes that financial development generally started with the emergence of a banking system. Fry (1995) also notes that commercial banks tend to be the first institutions that emerge during the first stages of financial development, offering basic services such as providing a payments system and intermediating between surplus and deficit households. Caprio et al (1994) and Blommestein and Spencer (1994) argue that when establishing financial systems in transition and developing countries, one should take the sequencing issue explicitly into account. Although establishing securities markets might for instance be considered of great importance, such markets may depend on the pre-existence of efficient banks. Given the limited financial and human resources in developing countries, priority should then be given to developing adequate banking systems first.

Allen and Gale (2000) try to build a bridge between the proponents of market-based and bank-based financial systems by arguing that an optimal financial system indeed relies on both financial markets and financial intermediaries. First of all, the authors stress that markets are incomplete, as there are fixed costs attached to setting up markets and markets

32 Universal banks extend term loans, while commercial banks traditionally restrict themselves, or are restricted to, short-term lending only (Fry, 1995, p. 336).
33 McKinnon (1973), however, remarks that financial repression in the form of regulated interest rate ceilings and collateral requirements has resulted in a situation in which "organized banking has a sorry record in penetrating the economic hinterland of less developed countries LDCs), in serving rural areas in general, and in serving small borrowers in particular" (p. 68). Such interest rate ceilings have not only restricted the overall volume of bank lending, but have also directed the little bank credit available to completely safe borrowers.
34 Note that the authors include the corporate sector into their definition of the financial sector, since in the presence of imperfections in the financial sector, companies will start to internalise certain financial tasks. One can think for instance of the importance of internal finance for firms when financial markets are characterised by asymmetric information and agency costs (see also footnote 15).
have to deal with problems of asymmetric information.\(^{35}\) Financial intermediaries can thus complement these incomplete markets by offering tailor-made risk-sharing contracts, which is especially important when participation costs in financial markets are high.\(^{36}\) Furthermore, in market-based systems, households often hold a large portion of their financial assets in the form of securities that are traded on markets, which means that they have to deal with fluctuations in the value of these assets. Financial intermediaries may provide households with possibilities of intertemporal smoothing of these non-diversifiable cross-sectional risks, thereby reducing consumption variability.\(^{37}\) Additionally, financial intermediaries allow long-term relationships and commitments.\(^{38}\)

There exists a symbiotic relationship between intermediaries and markets. The development of new and sophisticated markets has for instance lead to a situation in which financial intermediaries start to assume the role of adviser, allowing firms and individuals to participate in these markets and get the most out of them. In this sense, markets need financial intermediaries. On the other hand, sophisticated markets reduce costs for intermediaries and improve the possibilities for hedging risks. Consequently, financial intermediaries need markets. Allen and Gale (2000) come to an interesting conclusion when noting that (p. 501): \"neither markets nor intermediaries provide a silver bullet that can protect us against stupidity or corruption. Prudent regulation, transparent accounting, a reliable legal system, and a predominance of well-trained professionals are the least that is required to make any financial system work\". This is exactly the point made by a recent strand of economic literature, known as the "legal view".

5. The legal view and the role of institutions

The so-called legal view poses that the effectiveness of the legal system determines the level and quality of financial services, provided by both banks and markets.\(^{39}\) The debate about the relative merits of bank-based versus market-based financial systems is therefore rather

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\(^{35}\) The Arrow-Debreu paradigm of complete markets ensures that there is a perfectly functioning market system. By means of incorporating time and uncertainty in a model commodities are redefined so that the same physical good delivered in different states of nature or at different dates is treated as a different commodity (Allen and Gale, 2000, p. 129).

\(^{36}\) Hellwig (1998) reaches the same conclusion.

\(^{37}\) However, these risk-smoothing services can only be provided by financial intermediaries as long as these institutions do not encounter too much competition from financial markets during “good” periods. During such periods, the returns offered on financial markets may exceed the returns offered by financial institutions that have to build up reserves for “bad” times, ultimately resulting in disintermediation.


pointless within a legal view framework: it is the legal rights of both debt and equity investors that promote economic growth by stimulating financial development. Such legal rights are on their part dependent on the specific institutional environment of a country. This implies that the financial system, whether market-based or bank-based, and its influence on economic development, will at least to some extent be dependent on the institutional structure of an economy. It is the field of institutional economics that tries to elucidate the role and development of this institutional structure.

Basically, institutional economics aims to incorporate a theory of institutions into economics, emphasising the pivotal role of transaction costs and enforceable property rights. In doing so, it has to abandon the postulate of instrumental rationality, as in a world of fully rational subjects and the resulting efficient markets, institutions are clearly unnecessary. Instead, institutional economists think of individuals as subjects who interpret the world around them with mental models. These models are partly culturally determined and partly acquired through experience and learning. This implies that mental models will differ between individuals, especially when there is a high degree of specialisation and division of labour. Individuals with the same information set and the same utility function can still make different decisions, introducing the possibility of multiple equilibria. Because of limited mental capacity and incomplete information, transaction costs are high, which will eventually lead to the creation of institutions that both reduce costs and uncertainty in human exchange.

Institutions can be regarded as the rules of the game of a society, the humanly defined constraints that structure interaction and therefore provide the incentive structure of an economy. They consist of formal rules (law, regulations), informal constraints (conventions, self-imposed codes of conduct), and the enforcement characteristics of both. Institutions should not be confused with organisations, which are the players in the game that is defined by institutions. When institutions have emerged, they will only change incrementally: they are path dependent. This path dependency is the result of the fact that within a given institutional structure, the individuals and organisations that benefit from this structure do their best to perpetuate it. Both the interests of the existing organisations and the mental models of individuals will therefore "rationalise" the existing institutional set-up. In doing so, they will bias the perception of actors in favour of policies conceived to be in the interests of existing

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40 The following discussion is to a large extent based on North (1987), North (1993I,II,III) and Alston et al (1996).
organisations. Especially informal institutions, such as norms and conventions, which are usually the result of a long cultural heritage, are important sources of path dependency. The fact that informal institutions in particular will only change very slowly, has important implications for countries that want to "adopt" the formal institutions from other countries or economic systems.⁴¹ Although such formal institutions can be copied relatively easily, informal institutions cannot. Simply transferring formal institutions is therefore not a sufficient condition for good economic performance: the interaction between new formal institutions and existing informal institutions must be taken into account.

Institutional economics is clearly at odds with the neo-classical result of efficient and apolitical markets in which transacting is costless and demand and supply will find each other instantaneously, helped by a metaphorical auctioneer.⁴² Neo-classical economists have typically assumed that institutions did not matter and that, for instance, eliminating price controls would result in more efficient markets. Institutional economists, on the other hand, stress the importance of institutions in reducing uncertainty: price liberalisation will only have the desired results if adequate property rights are in place and enforced. When this is not the case, commitments between individuals will not be credible and uncertainty will be high. This may result in high transaction costs or transactions may not take place at all. (In)formal institutions may then, by decreasing uncertainty, improve the functioning of markets in the sense that all market participants obtain better results.

The legal view can be regarded as an application of institutional economics, particularly focusing on the role of economic institutions such as secure and enforceable investor rights. In essence, the legal view predicts that the component of financial development that can be explained by the legal institutional structure is a much better predictor of economic performance than the financial structure per se. The seminal paper by LLSV (1998), which is largely based on their earlier 1996 working paper, describes the underlying framework of the legal view. Core elements of this framework are the cross-country differences in legal rules that protect both corporate shareholders and creditors, the origin of these rules and the quality of their enforcement. The main theme of the LLSV-paper is that small outside investors will only be willing to invest their money in firms, -whether as shareholders or as creditors- if they can be relatively sure that the firm management (the "insiders") uses the investors' money in

⁴¹ Of course, the transition economies in CEE readily spring to mind.
⁴² See the seminal essay by Coase (1960).
their best interest. Shares give their owners the right to vote for the directors of companies and debt entitles creditors to repossess collateral when the company fails to make the promised payments. Thus, these rights, which are attached to shares and debt contracts, should ensure that investors have the power to extract from managers the returns on their investments (LLSV, 1998, p. 1114). However, the effectiveness of such rights strongly depends on the legal system of a country. In some countries, outside investors may have better legal protection from "bad" managers than in other countries and in some countries existing laws may be better enforced than in others. Since the protection investors receive determines their readiness to finance firms, corporate finance may critically depend on these legal rules and their enforcement (LLSV, 1998, p. 1114). In that way, a country's legal system may influence economic growth by means of acting upon the financial system.

6. *Theories of financial system development and economic growth in transition economies*

In the preceding sections some important general economic theories regarding the interdependence of financial, institutional, and economic development have been discussed. So far, no explicit attention has been paid to finance-growth issues specific to transition economies. Yet, from a theoretical viewpoint one would expect that the links between financial and economic development in the former socialist countries of Central- and Eastern Europe would at least show some peculiarities. First of all, there is the fact that in these countries the general level of both financial and economic development is still rather low (see Table 1).

<table>
<thead>
<tr>
<th>Transition countries</th>
<th>GDP per capita in USD</th>
<th>Unemployment (% of labour force)</th>
<th>Consumer prices (annual average / % change)</th>
<th>Credit to private sector (% of GDP)</th>
<th>Stock market capitalisation (% of GDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>714</td>
<td>16</td>
<td>19</td>
<td>4</td>
<td>n.a.</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>1.279</td>
<td>50</td>
<td>341</td>
<td>18</td>
<td>n.a.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>4.952</td>
<td>4</td>
<td>9</td>
<td>60</td>
<td>32</td>
</tr>
<tr>
<td>Estonia</td>
<td>2.527</td>
<td>9</td>
<td>28</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td>Hungary</td>
<td>4.345</td>
<td>10</td>
<td>22</td>
<td>23</td>
<td>20</td>
</tr>
<tr>
<td>Latvia</td>
<td>1.901</td>
<td>17</td>
<td>22</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Lithuania</td>
<td>1.871</td>
<td>6</td>
<td>36</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Poland</td>
<td>3.120</td>
<td>14</td>
<td>24</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>Romania</td>
<td>1.506</td>
<td>9</td>
<td>91</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>2.546</td>
<td>9</td>
<td>143</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Slovak Republic</td>
<td>3.233</td>
<td>12</td>
<td>9</td>
<td>32</td>
<td>28</td>
</tr>
<tr>
<td>Slovenia</td>
<td>8.798</td>
<td>8</td>
<td>13</td>
<td>27</td>
<td>5</td>
</tr>
<tr>
<td>Ukraine</td>
<td>829</td>
<td>1</td>
<td>341</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Western countries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>25.212</td>
<td>12</td>
<td>2</td>
<td>86</td>
<td>25</td>
</tr>
<tr>
<td>Germany</td>
<td>27.681</td>
<td>10</td>
<td>2</td>
<td>108</td>
<td>31</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>19.847</td>
<td>7</td>
<td>3</td>
<td>119</td>
<td>128</td>
</tr>
<tr>
<td>USA</td>
<td>28.918</td>
<td>6</td>
<td>2</td>
<td>65</td>
<td>73</td>
</tr>
</tbody>
</table>

Secondly, a unique feature of these countries is that they have experienced (and indeed are still experiencing) an unprecedented period of institutional change. The end of the era of state socialism and absolute power of the communist party marked the beginning of a transitional period of reform towards a market economy. During socialist times, banks were no more than passive instruments of the government to allocate funds to firms in accordance with the central plans. Generally, banks were specialised on a geographical or functional basis and together with the central bank they made up a monobank system. Additionally, savings were collected from the public by means of a savings bank. Commercial and risk-based lending standards were unknown as the government budget guaranteed a payback of practically all loans. During the early years of transition, two-tier banking structures were created, in which the state-owned commercial banks were cut loose from the central bank. In a later phase, many of these state-owned banks were restructured and privatised and new private banks were allowed to emerge. During this second phase, also the role of foreign banks in CEE began to increase. After more than a decade, this transition process is still continuing as many of the former socialist countries are now preparing for accession to the European Union. In this section, we will go deeper into some (theoretical) aspects of this process that follow on the more general theories discussed above. First of all, we pay some attention to the theoretical importance of institutional change in CEE. Special attention is given to the concept of soft budget constraints (SBCs). After that, we look into the theoretical importance of financial intermediaries in a transition economy more generally. An overview of empirical research with regard to the finance-growth nexus in CEE is provided in section 8.

As the previous sections already made clear, standard neo-classical economic theory provides very few departure points for analysing the significance of financial sector development for economic growth. Indeed, when full rationality and the tendency for a general equilibrium are taken as given, it even becomes difficult to explain the mere existence of financial intermediaries. Only when the standard assumptions of neo-classical economics are to some extent adapted, e.g. by assuming asymmetric information or introducing bounded rationality, both the existence and the importance of the financial system can be better judged on a theoretical basis. Moreover, when considering the importance of financial development for transitional economies in particular it may be clear that the departure from the standard neo-classical assumptions is even greater. Transition is characterised by large scale institutional change, and although it is well-known that such changes are paramount in explaining the financial and economic developments in transition economies, the theoretical equipment of
standard neo-classical economics seems of little use here. As Van Ees and Garretsen (1994) point out, competitive general equilibrium theory regards institutions merely as constraints upon the behaviour of (fully rational) agents. Since co-ordination is assumed to be dealt with by a Walrasian auctioneer, (changes in) institutions other than this fictitious auctioneer become meaningless.43

When attempting to build theoretical models for explaining the role of financial markets and intermediaries in transitional economies, the existence of informational asymmetries and institutional changes should thus be taken into account explicitly. In doing so, microeconomic incentives, and in particular distortions in such incentives, gain importance. Van Ees and Garretsen (1994, p. 7) enumerate three financial distortions that are important when trying to understand the role of the financial sector in transition economies. First of all, there is the existence of SBCs and the lack of effective bankruptcy laws. Secondly, imperfect privatisation and its adverse effect on implementing harder budget constraints can be mentioned. Finally, because of path-dependency, the initial conditions of CEE-countries matter by influencing the behaviour of current agents. In the remainder of this section we will elaborate a bit more on these financial distortions, with a focus on SBCs, and their relevance for financial and economic development in CEE. We will also briefly discuss the (dis)advantages of bank-based and market-based financial systems in light of the specific characteristics of transition economies.

For a proper understanding of incentive problems and the related financial distortions in former socialist economies, the theoretical concept of soft budget constraints (SBCs) is indispensable. The term was first used by Kornai (1980) when describing the bailing out of loss-making firms by socialist governments with paternalistic objectives.44 In this paper we use the following definition (Mitchell, 2000): “A firm has a soft budget constraint if (1) it has negative expected net present value but receives financing; or (2) if a financial decision of a creditor or the government following default allows the firm to continue in operation although its assets would yield a greater return in an alternative use.” It is important to note that the fact that firms are loss-making or have large debts in arrears is not evidence of SBCs

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43 Indeed, by assuming the existence of this neo-classical deus ex machina the theoretical distinction between a market economy and a centrally planned economy becomes meaningless (see also Hayek, 1949).
44 Such paternalism refers to the fact that socialist governments, or for that matter all governments, may not make financing decisions on the basis of financial criteria only when deciding on financing/subsidising certain firms or industries, but may also pursue other objectives such as low overall unemployment.
in itself: as long as banks, trade creditors, or the state are not rescuing the firms with fresh capital, these firms will still experience hard budget constraints (Schaffer, 1998). Mitchell (2000) gives a taxonomy for classifying SBC models into two broad categories. The first category treats SBCs as dynamic commitment problems due to sunk costs. In this case, SBCs lead to ex ante (i.e. prior to default) inefficiencies, for instance because banks cannot adequately distinguish between firms with positive and negative net present value. In contrast, the refinancing of banks can be regarded as ex post efficient, since the original loan is sunk. The second category relates to SBC-models of creditor passivity, in which creditors passively roll over their loans in default, rather than to actively pursue their claims. In this category of models, banks’ behaviour is ex post inefficient, while the decision to finance a firm is ex ante efficient.

Berglöf and Roland (1998), elaborating on Dewatripont and Maskin (1995), provide a simple, yet elucidating formalisation of the concept of SBCs, which is graphically represented in figure 5. In their model, SBCs represent a dynamic or sequential commitment problem in which it is ex post optimal for an investor to bail out a borrower (instead of liquidating) because the funds that are already invested must be regarded as sunk costs. When investors have a lack of credible commitment to liquidate, this will lead to moral hazard behaviour on the side of the borrower. The firm expects to be refinanced and has therefore a soft budget constraint. Suppose first of all that in a two-period game, the government of a transition economy lends directly to firms. There are firms with "good" and with "bad" projects, respectively in proportion \( \alpha \) and \( (1-\alpha) \). The government has no information about the quality of the projects and lends the firms the start-up costs of 1 monetary unit. At the end of period 1, the good projects will yield a return to the government of \( R_g \) and deliver private benefits of \( B_g > 0 \) to the firm's management. Poor projects can yield the same return, but only if the firm

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45 Mitchell, 2000, p. 61. Reasons for this behaviour are, among others, that banks try to hide their own financial difficulties or that they believe that they will ultimately be rescued. See for instance Perotti (1998).

46 This model therefore belongs to Mitchell’s first category.
management exerts high effort (effort being a binary choice between "high" and "low"). If the management exerts low effort, yield will be zero. In that case the government will have to make a decision between liquidating the project, thereby receiving the liquidation value $L$, or refinance the loan with an additional monetary unit. Government will then get a gross return equal to $R_p$ at the end of period 2, while the firm gets a private benefit of $B_p$. It is assumed that the government is "paternalistic", in the sense that it maximises the net returns to investment plus the private benefits of firms, which can be thought of as proxying for the amount of employment in firms. Now, when will firms in this game have a SBC and therefore exert low effort? This will be the case if:

\[ R_p + B_p - 1 > L \text{ and } B_p > B_g \]  

According to (7) SBCs will exist when refinancing is ex post more attractive for the government than liquidating and when at the same time the private benefits for the firm are higher in case of low effort and subsequent refinancing than in the case of exerting high effort. In this case the refinancing of poor projects is inefficient when $R_p + B_p < 2$.48

SBCs can not only emerge when the government finances firms directly, but also when a commercial banking system has already been created, as is the case in many transition countries. The only difference is that commercial banks do not take into account the private benefits of the firms in their own utility function.49 Using the same framework, it can be shown that firms will have soft budget constraints if:

\[ R_p - 1 > L \text{ and } B_p > B_g \]

If the first condition is met, it is ex post optimal for a bank to refinance instead of liquidating the project. Although the project is inefficient ex ante, it should be remembered that the initial

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47 In that case firm management receives nothing.

48 If SBCs are expected, the expected net return to lending is $\alpha(R_g + B_g - 1) + (1 - \alpha)(R_p + B_p - 2)$. Net expected return is positive when $\alpha > 2 - R_p - B_p / R_g + B_g - R_p + B_p + 1$ and since there is asymmetric information all (no) projects are financed when expected overall return exceeds (is lower than) this threshold. There is a loss on each poor project equal to $2 - R_p - B_p$.

49 Schaffer (1998) notes that SBC-models like in Berglöf and Roland (1998) differ from the original SBC-concept of Kornai (1980) in that the financing decision by lenders is based on profit-maximising objectives, while Kornai's paternalistic lenders provide funds to loss-making firms without expecting to be paid back. In other words: Kornai's paternalistic government would also finance a firm when it already knew ex ante that this firm would be loss-making, while the typical bank in Berglöf and Roland's framework would not do this.
costs of investments are already sunk when the bank has to make a decision about whether or not to refinance. Firms know this and will therefore exert low effort when their private benefits in case of refinancing exceed the benefits in case they would have exerted high effort in period 1.\textsuperscript{50} When the bank would be able to credibly commit itself to liquidating poor projects, firms would always exert high effort. Berglöf and Roland (1998) extend the above basic model, and in doing so show for instance that banks will find it more difficult to commit credibly to a liquidation strategy when interactions between firms due to trade arrears of insolvent firms may lead to spill-overs to healthy firms. In that case the liquidation may adversely affect the bank itself. Also, Perotti (1998) shows theoretically that enterprises will extend trade credit to doubtful firms, when there is an overall expectation that the government will not tolerate a high rate of insolvency and will accordingly provide a collective bail-out in the end. The resulting abundant availability of trade credit may then in turn prevent firms from restructuring.

Berglöf and Roland (1997), using a similar model as described above, show that SBCs and credit crunches can coexist when banks tend to refinance old projects and at the same time withhold finance from new firms.\textsuperscript{51} This will be the case when the proportion of good new projects ($\alpha$) is relatively low and the difference in returns between good projects and the refinancing of poor projects is small. Banks will then favour the "sure" investment of refinancing existing loans above the funding of risky new projects. However, by means of investing in screening technology, banks can improve the profitability of new lending. Budget constraints will then become harder endogenously, since banks can more credibly commit not to refinance. If large financial institutions can invest more in screening technology, this model thus leads to the result that large banks will impose harder budget constraints.\textsuperscript{52}

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\textsuperscript{50} Projects will be financed if, and only if, $\alpha > 2 - \frac{R_p}{R_g} - R_p + 1$.

\textsuperscript{51} Perotti (1993), using a model of value-maximising banks with large portfolio's of bad debts, also shows that banks have a perverse incentive to finance current debtors (SOEs) because of the potential repayment of former debts. Perotti argues that such behaviour adversely effects financial stability as the portfolio's of banks get more and more concentrated, while at the same time economic growth is hampered due to the fact that the expansion of relatively efficient firms is delayed. SBCs for SOEs can thus persist and hinder the process of Schumpetarian creative destruction even when the banking system is privatised and banks want to maximise their profits.

\textsuperscript{52} Berglöf and Roland (1997) remark that this conclusion can be become less clear and even reversed if there are large economies of scope between (ex ante) screening and monitoring (which takes place during the loan period). In that case, monitoring may increase the relative profitability of refinancing, thereby softening firms' budget constraints. The reduced credibility not to refinance which would be the result of increased monitoring, may even prompt banks to (rationally) remain passive instead of starting to monitor more vigorously.
According to the above analysis, the transfer of lending activities from the government to newly created (or foreign) commercial banks can harden budget constraints.\(^{53}\) However, as can be seen from equation (8), SBCs may endure even when the banking system has reformed. Commitment problems for banks in transition countries may be especially severe since the collateral value of firms (and therefore the liquidation value \(L\)) will be relatively small. Even when collateral is available, \(L\) might be low because legally claiming this collateral might be costly and time-consuming due to institutional deficiencies like inadequate investor protection. As was mentioned earlier, the legal view stresses the importance of such institutional and legal arrangement in promoting growth. SBCs can therefore be seen as one of the transmission channels through which an underdeveloped legal system can adversely effect economic development. When SBCs persist, loans will be directed to mostly inefficient and highly leveraged state-owned enterprises (SOEs), resulting in an inefficient allocation of resources especially when monetary policy, largely based on macroeconomic considerations, is restrictive. Institutional arrangements, both formal rules (such as enforceable bankruptcy laws) and informal norms (such as commercial lending practices), that make banks' incentives to liquidate more credible, may therefore be an important prerequisite for obtaining harder budget constraints in transition economies. In the end, such improved microeconomic incentives may ameliorate the efficiency of the macroeconomic resource allocation, thereby stimulating economic growth. Yet, even after privatisation and/or restructuring a bank-based financial system may still confront transition countries with significant allocative inefficiencies. Consequently, the theoretical debate about how the financial systems of transition economies should look like is still unresolved. We shall have a brief look at the advantages and disadvantages of both bank-based and market-based financial systems for CEE.

Not surprisingly, many authors stress the above described "wrong" incentive structure in (former) state-owned banks and conclude that bank-based systems have serious drawbacks. Grosfeld (1994) for instance, argues that a financial system that is too strongly bank-based ("German-type") can prevent necessary enterprise restructuring. Banks will be excessively committed and roll over debts to existing (state-owned) firms. This will consequently lead to both too little "exit" and too little "entry". The author refers to the theory put forward by Allen (1993)\(^{54}\), which stresses the role stock markets can play in providing competitive assessments.

\(^{53}\) This will be the case when \(R_p - 1 < L < R_p + B_p - 1\).

\(^{54}\) See also Allen and Gale (2000) and the discussion of both references in section 4.
of investment opportunities. According to Grosfeld (1994) such multiple assessments of firms are especially needed in the early and uncertain phases of transition, since in that period restructuring and the accompanying reallocation of resources is most important. However, the author recognises that although stock markets can provide multiple assessments of projects, they may be less able to provide long-term financing and commitment. She therefore concludes that commercial and investment banks can play an important role in CEE, as long as a pure insider model - in which banks are both owners and privileged creditors of firms - is avoided. Such interlocking ownership structures will hinder the generating of multiple assessments of investments and - thereby - the efficient restructuring of the enterprise sector.

Hermes and Lensink (2000) also discuss the role stock markets can play in transition economies. Their discussion shows that this role is still widely disputed. On the one hand, several authors such as Levine (1991) argue that stock-markets can stimulate more productive long-term investments, because they provide investors with liquidity insurance as they can easily sell their shares. Stein (1989) on the contrary, argues that stock-markets tend to favour short-term investments, since these markets continually evaluate managers. Singh (1997) adds that stock markets do not perform their monitoring and screening role very well, especially not in emerging/transition economies, where the regulatory infrastructure is weak. He also adds that stock markets suffer from short-termism, whereas banks enable long-lasting relationships between firms and financiers.

We conclude this section by noting that (Scholtens, 2000) economic theory has not (yet) come up with a clear-cut answer to the question which sort of financial system is optimal for an economy in general, nor for the specific case of a transition economy. Roughly, with respect to CEE countries, two main "schools" can be distinguished, alongside the earlier made distinction between "marketeers" and "banketeers". The first group stresses the importance of establishing well-functioning stock markets in CEE. Grosfeld (1994) points to the importance of such markets in providing multiple assessments of investment opportunities. Also, it is argued that banks will favour their existing (SOE-)clients, instead of financing new and smaller firms. Moreover, many CEE banks may face the wrong incentives because they are both creditors to and owners of many firms. This may hinder corporate governance and

55 Interestingly, Allen (1993) stresses the fact that transition countries are primarily building basic industries with well-known technologies, which implies that developing the banking sector would need priority.
hamper the restructuring process. Furthermore, banks' financial knowledge is low and skilled bank supervisors are virtually absent. An extreme exponent of the market-view is McKinnon (1992) who argues that during the early stages of transition, banks should even be forbidden to lend to private firms, whereas they should be allowed to lend only short-term and fully collateralised during the later stages.

In the second group, however, many authors, such as Corbett and Mayer (1991), see an important role for banks, as banks can provide long-term financing more adequately and are able to monitor managers better and more frequently. In their view, a universal banking system would be the best solution for CEE. Characteristic of universal banks is that they perform both commercial and investment banking activities. More specifically, they do not only provide firms with credit, but also own significant portions of equity in these firms and are consequently represented on the boards of directors. Proponents of the universal banking system often argue that such banks can monitor the activities of firms more adequately. Also, firm managers can be disciplined not only by withholding credit, but also by means of exerting influence from the firm's board of directors.

Blommestein and Spencer (1994) stress the importance of banks in providing firms with both short-term working capital and a payment system. The restructuring and privatisation of the banking sector should therefore be of high priority. However, the authors do not recommend the establishment of a universal type system, at least not during the transition period itself. An important objection is that it may lead to the same perverse incentives that were present during socialist times, and which resulted in banks funding insolvable firms. This will especially be the case when banks' credit analysis is of low quality and when there are no adequate "fire walls" between the investment banking and credit operations of the banks. In the end, banks may end up being the captives of the firms in which they hold equity stakes.

In transition economies investors have only limited information about enterprises and due to the primitive legal environment, enforcement of investor rights is difficult. Caprio (1995) therefore argues that banks, although not ideal corporate governors, may be the only

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56 Levine (1997), however, argues that such liquid and diffuse ownership may hamper incentives to monitor the managers and exert corporate control.
57 See also Mayer and Vives (1993).
58 See also Scott (1994), who argues that during transition, banking and supervisory skills are insufficient to support German type universal banks.
alternative available for ensuring that management does not divert resources from (privatised) firms. Scholtens (2000) concludes that, since capital markets need a much more sophisticated legal system than banks, the literature on the whole tends to favour to first establish a safe and sound banking system before developing fully functioning financial markets. However, both systems can and should be seen as complements rather then substitutes\textsuperscript{59}. However, since actual stock-markets in CEE are still very young and illiquid, evidence on the exact (complementary) role such markets can play is still scarce.\textsuperscript{60}

7. **Empirical findings on financial system development and economic growth in general**

It can be argued that empirical research into the long-term relationship between the development of the financial system and economic growth has gained particular momentum in two different time periods. The 1960s and the beginning of the 1970s made up the first period, while the second period started during the 1990s and continued into the beginning of this century. During the 1960s most empirical work was inspired by neo-classical growth theory, based on the seminal work by Solow (1956, 1957), while much empirical work during the “second wave” focused on the empirical exploration of new endogenous growth theories, especially those developed by Romer (1986) and Lucas (1988). At the end of the 1990s empirical work also started to address itself to researching the legal view.

One of the first empirical studies is Goldsmith (1969), which describes for 35 countries the relationship between financial intermediation and economic growth over the period 1860-1963. Goldsmith concludes that there is a long-term relationship between both variables. He shows that periods with above average economic growth in many cases coincide with an above average financial development. Nevertheless, the research suffers from some important shortcomings (Levine, 1997). First of all, only a limited number of countries are being analysed and, secondly, there is no systematic check on possible other, more significant variables that influence economic growth.\textsuperscript{61} Furthermore, the possible correlation between financial development and growth of productivity and capital accumulation is not being researched and, even more important, no information is given concerning the direction of the

\textsuperscript{59} Levine and Zervos (1998) and Allen and Gale (2000), please refer also to section 4.
\textsuperscript{60} In 1995 stock market capitalisation of CEE-economies was, on average, 10% of that of a sample of 12 western economies (Scholtens, 2000, p. 537). Additionally, stock market liquidity (measured by the turnover ratio) was only about half of that in western countries. This second result may be most important, since Levine and Zervos (1998) show that it is stock market liquidity rather than capitalisation that matters for economic growth.
\textsuperscript{61} In other words: there is no adequate testing of the robustness of the variables that are used as a proxy for the level of financial intermediation.
causality between financial development and growth. This last point of criticism is of great importance since from, a theoretical angle, it is very well possible that economic growth is a determinant of the development of the financial system instead of the other way round.

More recent empirical research, often based on endogenous growth models, has run up against difficulties in arriving at uniform conclusion with regard to the direction of the causality between financial development and economic growth. King and Levine (1993) and Levine (1997) show, on the basis of both empirical work of their own and an overview of earlier research, that countries with relatively large and efficient sectors of financial intermediation exhibit systematically higher growth rates than other countries during the post-World War II period. In the former article the authors try to improve the research done by Goldsmith (1969) in several ways. By examining the relationships between different financial indicators and GDP they reach the conclusions that inhabitants of rich countries hold relatively more liquid assets, that in rich countries relatively more credit is extended by commercial banks (instead of by the central bank) and that in rich countries a relatively large proportion of all loans is granted to the private sector. However, these findings are only based on calculated correlation coefficients, which moreover concern a rather heterogeneous group of countries, thereby giving no direct insight into the direction of the causality. In the article, various regressions are estimated with real per capita growth, per capita capital accumulation and growth of productivity as dependent variables. The authors try to explain the variance in these variables by looking at the influence of different indicators of the degree of financial development, as well as different control variables. These control variables are other possible determinants of economic growth, so that the robustness of the financial variables can be examined. The authors also try to resolve the problem related to the direction of causality. This is done by using the initial financial development as the independent variable, which basically means that one tries to investigate to what extent economic growth can be forecasted by financial indicators. Most of the regression results show that financial intermediation determines economic growth. From a statistical viewpoint it may seem that these results would have solved the problem of the unknown direction of causality. However, there still remains a problem because it could very well be possible that the financial development of a country depends on the expectations about the (future) economic growth. In that case financial

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62 The inclusion of these control variables can thus be seen as an improvement with respect to the research carried out by Goldsmith (1969).
63 After all, current economic growth cannot influence the financial development of the past.
development will forecast economic growth simply because financial systems tend to expand according to the existing expectations about this future growth: financial intermediation is merely a leading indicator and not a causal factor.64

Levine and Zervos (1998), using cross-country data on 47 countries from 1976 through 1993, extend the analysis of the relationship between financial system development and economic growth by including, besides financial intermediaries like banks, secondary stock markets.65 They especially focus on the liquidity of these markets, hypothesising that “liquid stock markets reduce the disincentives to investing in long-duration projects because investors can easily sell their stake in the project if they need their savings before the project matures. Enhanced liquidity, therefore, facilitates investment in longer-run, higher return projects that boost productivity growth” (Levine and Zervos, 1998, p. 537).66 Their empirical analysis shows that stock market liquidity (but not stock market capitalisation) is positively and significantly correlated with current and future rates of economic growth, capital accumulation, and productivity growth.67 Additionally, the level of banking development enters their regressions significantly, leading the authors to the conclusion that banks provide different but complementary services from those of stock markets, a conclusion which is in line with the earlier mentioned theoretical work of Allen (1993) and Allen and Gale (2000). It is also in line with earlier work done by Demirgüç-Kunt and Levine (1996), which showed

64 Rajan and Zingales (1998) try to gain insight into the direction of causality by looking at firms’ costs of raising external funds. Their hypothesis implies that financial intermediation, by reducing moral hazard and adverse selection, decreases these costs. This means that industrial sectors that are typically dependent on external finance for their growth would be disproportionately favoured by a well-developed financial system. The authors find this to be true in a large sample of countries, thereby supporting the view that financial development is more to economic growth than simply a leading indicator. However, they acknowledge that their results do not prove that financial development is the actual cause of economic growth. The paper merely shows that, at least for some industrial sectors, a well-developed system of financial intermediation is necessary to enable firms to exploit profitable investment opportunities. Nevertheless, the availability of such opportunities remains the ultimate driver of growth.

65 In theory, both primary and secondary stock markets can influence economic growth. First, when a firm tries to raise money through an initial public offering (IPO), this offering will fail if the market ascribes a value to the firm that is less than the start-up cost. This is a clear, direct allocational effect in which investors ensure that resources are allocated to viable firms. Secondly, when the stock is publicly quoted on a secondary stock market, investors have an incentive to value it. When the managers of the firm do a bad job (according to the market), they will be sanctioned, either because they cannot raise additional money or because of a take-over attempt (Allen, 1993).

66 However, the theoretical effect of liquid stock markets on the savings rate is ambiguous as higher returns may induce savings rates to fall, thereby negatively affecting overall growth. Additionally, more liquidity may make it easier to sell shares, thereby reducing incentives of shareholders to undertake the costly monitoring of managers (Shleifer and Vishny, 1986).

67 Although the econometrical results cannot give definitive proof about the causality of the correlations, the authors have made such corrections that (1) the results do not merely reflect contemporaneous shocks to both financial development and economic growth and that (2) the predictive content of financial development
that across countries the level of stock market development is positively correlated with the development of financial intermediaries. Stock markets and financial institutions are generally complements and therefore grow simultaneously. Furthermore, the analysis by Levine and Zervos (1998) shows that it is not the size of the stock market but the liquidity of this market that is influencing growth. This leads the authors to the additional conclusion that “it is not just listing securities on an exchange; it is the ability to trade those securities that is closely tied to economic performance” (Levine and Zervos, 1998, p. 550).

Arestis and Demetriades (1997) criticise the work by King and Levine (1993) by noting that their growth equations, which are based on cross-section data, can only produce very limited evidence with regard to the direction of causality. This is caused by the fact that cross-section data only provide a picture of the average development of a variable for each country in the course of time. Information concerning (co)movements of different variables over time within a given country is therefore lost. Additionally, empirical work by Arestis and Demetriades (1996), which is based on time series analysis, shows that the direction of the causal link between financial intermediation and economic growth can differ importantly between countries, depending on national differences in financial intermediaries, the policy regime and effective governance. Their research shows for instance that in Germany the development of the financial system was mainly a determinant for economic growth, while the causality in the United Stated was probably the other way round. Levine, Loayza and Beck (2000) respond to the criticism that traditional cross-country regressions are unable to deal adequately with the causality issue between financial development and economic growth (see also for instance Neusser and Kugler, 1998). Using (cross-sectional) instrumental variables procedures and Generalised Method-of-Moments (GMM) dynamic panel techniques, they show that the strong correlation between financial development and growth is at least to some extent the result of a causal effect from financial intermediation to growth.

The work done by Arestis and Demetriades (1997) also pays explicit attention to secondary stock markets. The authors point out the fact that the development of stock markets does not always have to contribute positively to economic growth, for instance by providing more

indicators does not only represent the forward looking nature of stock prices (i.e. the price effect reflecting higher growth expectations by stock marker participants).

68 These techniques address the econometric problems which are the result of potential unobserved country-specific results and/or the endogeneity of the explanatory variables in lagged-dependent-variable models.
liquidity. It is also possible that the recurrent periods of instability that seem intrinsic to these markets negatively influence economic growth.\(^6^9\) Singh (1997, p. 771) also argues that “(...)
in general financial liberalisation and the associated expansion of stock markets in development countries is likely to hinder rather than assist their development”. He points out that in developing countries, the inherent volatility and the inefficient nature of the stock market pricing mechanism hinder a more efficient investment allocation. Secondly, the interaction between stock and currency markets may cause greater macroeconomic instability in case of macroeconomic shocks, thereby limiting long-term economic growth. And finally the author argues that the development of stock markets can undermine the position of the existing group-banking systems in developing countries. Singh (1997), however, only indirectly refers to empirical results regarding the (negative) relationship between stock market development and economic development in general. This brings us to the discussion of the empirical proof for the proposition that the development of the financial system can also have a negative effect on economic growth.\(^7^0\) Demetriades and Devereux (1992) argue that strongly increasing interest rates during a period of financial liberalisation have a negative impact on the amount of investments and therefore economic growth. Although the higher interest rate will in first instance lead to higher savings, the negative effect on investments due to the rising financing costs and the resulting decline in demand for funds will be predominant. Empirical research by Jappeli and Pagano (1994) also shows that financial intermediation can have negative consequences. Their research shows that there exists a significant negative correlation between on the one hand savings rates and growth rates and on the other hand indicators for the development of the granting of credit to households, such as the ratio of consumer credit to GDP and the maximum amount of mortgage credit per unit of collateral. Research by Arestis and Demetriades (1997)\(^(\text{simultaneity bias})\). See also Neusser and Kugler (1998) who use time-series to test for both cointegration and (Granger-) causality between financial sector development and technical progress in manufacturing.

\(^6^9\) They conclude that also the relationship between stock market development and economic growth should be investigated at a country level by using time-series analysis.

\(^7^0\) Such negative effects on economic growth could not be found in King and Levine (1993) or Levine (1997) as their cross-section research was on too high an aggregation level. When investigating the possible negative influences of financial system development on both the business cycle (short-term) and economic growth (long-term) one needs to single out specific markets (stock market, mortgage credit market). A protracted period of financial development can for instance go together with a period of strong economic growth. Assuming that the direction of the causality goes from financial development to economic growth, it can remain indiscernible at an aggregate level that, on certain specific markets, there tends to be a negative contribution of financial development to economic growth. The development of the banking system can for example result in such a strong over-all increase in the amount of savings, that the decrease in savings due to the easing of liquidity constraints on the market for mortgage credit is not noticed. Levine and Zervos (1998) do not find any empirical support for the proposition that more liquid stock markets negatively affect savings, productivity or growth rates.
furthermore shows, contradicting the cross-country results in Levine and Zervos (1998), that the development of stock markets can negatively influence economic growth as a result of the speculative developments that are possible on these markets. Especially when speculation on stock markets is (also) caused by rapid credit expansion, the uncertainty and risk sensitivity in these markets can increase fastly. A possible result is that interest rates rise quickly while the investments decrease, which ultimately puts pressure on economic growth. The authors, on the basis of time-series analysis, show that there is a significantly negative correlation between the volatility of the stock market and real GDP in Germany.

At the end of the 1990s a new strand of economic literature, the legal view, led to a tide of new empirical research (see also section 3). This research focuses on the relevance of (the quality of) legal institutions with regard to the influence of financial system development on economic growth. Nearly all of this research is based on a database developed by LLSV (1996, 1997a, 1998) which describes the legal rights of both creditors and shareholders in a large number of countries, as well as estimates of "law and order", which proxy for the quality of law enforcement in these countries. Additionally, all countries are categorised according to their legal origin or family. The authors discern four different legal families: French, German, and Scandinavian Civil Law and the British Common Law. The English, French and German legal systems were spread around the world mainly through conquest and imperialism and can therefore be regarded as largely exogenous to a country's financial structure. The authors show that civil law countries provide investors with weaker legal rights than common law countries. French civil law countries give the weakest protection. The quality of law enforcement is the highest in Scandinavian and German civil law countries, next highest in common law countries and again the lowest in French civil law countries. There is thus no support for the hypothesis that the quality of law enforcement substitutes or compensates for the quality of laws. Furthermore the authors show (p. 1139) that it is not the case that some legal families protect shareholders and other protect creditors. One possible exception, however, are the German civil law countries which are protective of secured creditors, though generally not of shareholders. Also, when the legal system does not protect small shareholders well, as is often the case in (French) civil law countries, ownership tends to be more concentrated (LLSV, 1998 and La Porta, Lopez-de-Silanes and Shleifer, 1999). According to Stultz (2000) this might indicate that acquiring large stakes is only advantageous to the extent

Also, in most of their (cross-country) specifications they do not find a significant correlation between stock market volatility and growth.
that such large stakes provide significant private benefits. This would be the case because large stakeholders can more easily withdraw private benefits from a firm if the rights of minority shareholders are not well protected.

LLSV (1997) argue that the origin of a country's legal system also matters significantly for its financial development. Countries with poorer investor protection (measured by both the legal rules and their enforcement) turn out to have smaller and narrower capital markets, both equity and debt markets.71 Again, French civil law countries are shown to have the weakest investor protections and (therefore) the least developed capital markets. Yet, the authors make no attempt to widen their analysis to the real economic effects of legal origin and its influence on financial development, although they hint on such an extended relationship by noting that their results "add up to a rather consistent case that the quality of the legal environment has a significant effect on the ability of firms in different countries to raise external finance (p. 1146.

Extending to the legal view approach as developed by LLSV, Levine (1998), Levine, Loayza and Beck (2000) and Levine (2000) show that the legal view matters for both the relationship between bank credit and economic growth and between general financial development and economic growth.72 Levine (1998) focuses on the relationship between the legal environment, banks and economic growth. He shows that the exogenous component of banking development, i.e. the component that is related to the legal institutions and legal origin, is positively associated with economic development in a cross-section of countries. Since legal origin can be thought of as an exogenous characteristic, countries have typically obtained their legal system through occupation or colonisation (LLSV, 1998), this implies that the relationship from legally defined financial development to economic growth can indeed be regarded as a causal one.73 More specifically, Levine shows that countries that (a) give a high priority to creditors receiving the full present value of their claims against firms and (b) effectively enforce compliance with such legal protection measures, have better developed banks than countries that lack such enforceable creditor rights. Also, countries with a

71 Although LLSV (1997) use the term debt "market" (as particular capital market), they also include bank credit in their debt market variable.
72 Where financial development is measured by conglomerate indices of bank activity and stock market activity, i.e. not by separate banking and stock market variables that are simultaneously entered into the growth regression, as in Levine and Zervos (1998).
73 Levine (p. 610) nevertheless explicitly notes that this does not rule out that there could also be a two-way causality, as described by for instance Greenwood and Jovanovic (1990, see also section 3).
German-type legal system tend to have better developed banks. Levine, Loayza, and Beck (1999, 2000), using legal origin dummy variables as instruments, furthermore show that countries with particular legal origins tend to create particular types of laws, regulations and enforcement mechanisms. Such institutional arrangements have a positive influence on the functioning of financial intermediaries, which in turn has a positive causal influence on economic growth. In a subsequent paper, Beck, Levine and Loayza (2000) go deeper into this relationship, by examining the (causal) link between financial development and the sources of growth. Once more they use the legal origin dummies as instrumental variables to extract the exogenous component of financial intermediary development, in order to control for simultaneity bias. The authors conclude that financial intermediaries exert a large, positive influence on total factor productivity growth, which feeds through to overall GDP growth.\textsuperscript{74} However, the long-run links between financial intermediation and other sources of economic growth (physical capital growth and private savings) are tenuous. These conclusions are in line with for instance Schumpeter (1934) who also stresses the role of banks in improving the allocation of savings (as opposed to the rate of savings), thereby stimulating total factor productivity growth.

Levine (2000), using a more extensive dataset on the whole financial system (thus not only banks)\textsuperscript{75}, shows that there is no cross-country empirical support for either the market-based or the bank-based view. Making a distinction between these two systems does therefore not help in explaining international growth differences. However, the results do show that better-developed financial systems positively influence economic growth and that the legal system plays a leading role in determining the level and the quality of such growth-promoting financial services. This leads the authors to the conclusion that policy makers should focus on strengthening the legal rights of outside investors and should not take measures to construct a particular financial structure. Stultz (2000, p. 40-41), nevertheless questions the policy relevance of empirical results confirming the legal view. He stresses that it is questionable if changing (the enforcement of) laws by itself will indeed positively influence the quality of the financial system. He adds that up to now no empirical research is on hand showing whether the financial and economic development of countries which changed (the enforcement of)

\textsuperscript{74} Total factor productivity is an index of productivity that measures total output per unit of input. The growth of total factor productivity is often taken as an index of the rate of technological progress (Samuelson and Nordhaus, 1989).
their legal system has improved. This critique is in line with the idea, brought forward by institutional economists such as North (1993), that the transferring of formal institutions such as legal systems is not a sufficient condition for improving economic development. This is the case since appropriate informal institutions are a necessary condition for good economic performance, as it is the mental models of individuals that will ultimately shape their decisions.

The results of Levine (2000) confirm and explain some earlier stylised facts presented by Demirgüç-Kunt and Levine (1999) which show that financial systems, on average, are more developed in richer countries. They also show that countries with (a) a French civil law tradition as opposed to an English common law tradition, (b) poor protection of shareholder and creditor rights, (c) poor contract enforcement, (d) high levels of corruption, (e) poor accounting standards, (f) restrictive banking regulations or (g) high inflation, tend to have underdeveloped financial systems. Demirgüç-Kunt and Levine (1999) also report that in higher income countries, financial systems tend to be more market-based. As Levine (2000) shows, using a set of conditioning variables, there is no significant causal relationship between financial structure and economic growth.

Demirgüç-Kunt and Maksimovic (2000), using firm level data, corroborate the results of Levine (2000). The authors first regress financial system indicators on descriptors of the contracting environment. These regressions yield estimates of the level of financial development predicted by the level of development and characteristics of the legal system. Secondly, the growth variables are regressed on these predicted values, using several control variables. In this way it can be tested whether the legal system influences growth by means

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75 This dataset, as described in Beck et al (2000), provides statistics on the size, activity and performance of both financial institutions and markets across countries and over time. The database unfortunately does not include any CEE-countries.

76 Guiso, Sapienza and Zingales (2000) try to estimate the empirical importance of social capital in influencing financial development. They regard social capital as an informal institution consisting of internalised norms of behaviour. According to their hypothesis, social capital will have a positive influence on financial development, by means of influencing the level of trust in a society. Recall that financial contracts are very trust intensive (see also Fukuyama, 1995). They find that the effect of social capital, measured with indicators of civics such as electoral participation and blood donation, is stronger where legal enforcement, a formal institution, is weaker. This result is in line with LLSV (1997, pp. 1149-50) who argue that trust might actually substitute for legal institutions.

77 One control variable is for instance a separate legal variable, which tests for additional channels through which the legal environment can influence growth (i.e. not by means of the development of the financial system). Also, the authors include the residuals of the first-stage regressions. These residuals are made up of the component of financial development not explained by the legal environment.
of the development of the financial system. The potential influence of financial structure on
economic growth is then tested for by augmenting the regressions with financial structure
indicators. They find that the quality of a legal system predicts firms' access to external
financing (facilitating firm growth), while firms' financial constraints are not influenced by
the financial structure of an economy. The authors furthermore do not identify any
additional effects of the efficiency of the legal system not already accounted for in the
development of the financial system. Also, there is no significant benefit of a financial system
that is more developed than predicted by the legal contracting environment. Finally, the
development of securities markets is more related to long-term financing, while the
development of the banking sector is more related to the availability of short-term financing.

The empirical confirmation of the legal view has not only been established using cross-
country data (Levine, 1998 & 2000) and firm level data (Demirgüç-Kunt and Maksimovic
(2000), but also by using industry level data. Beck and Levine (2000) find evidence that
industries that are heavily dependent on external finance, grow faster in economies with a
higher level of overall financial development and with better protection of outside investors
(the authors do not find an additional influence on industry growth through financial
structure). More precisely, the authors show that it is not the growth in the average size of
establishments but rather the increasing number of new establishments that is the main
channel through which the legal determinants of financial development influence industry
also stressed the effect of financial development on industrial growth through an increase in
the number of new establishments. Such results can be explained by the fact that the creation
of new establishments is more likely to depend on external funds than the expansion of
existing ones, which can to some extent be financed with internal resources.

In Demirgüç-Kunt and Maksimovic (1998) the authors found comparable results, also by using firm-level
data. However, in this earlier article the authors did not look into the possible influence of financial structure on
firms' use of external finance. Furthermore, they did not use a two-staged estimation procedure when
establishing the influence of the contracting environment, but instead regressed their dependent variables
simultaneously on both indicators of financial development and proxies for the legal environment.

Stulz (2000) also emphasises the importance of the quality of the legal system. In his view, a sound legal
system is necessary to convince outside investors that (a) they will indeed receive the cash flows of the projects
that they finance and that (b) those cash flows are maximised by the management. Investors will be more
inclined to invest if the generated cash flows are contracted to be paid out to them, and, additionally, legal
enforcement of such contractual arrangements are satisfactory.
The legal view also led to a reconsideration of some earlier research results. Garretsen et al (2000), for instance, comment on Levine and Zervos (1998). The authors replicate the results of Levine and Zervos (1998), but also estimate new 2SLS-models adding several instruments à la LLSV that proxy for the legal environment. They conclude that the simultaneous relevance of stock markets and bank credit for economic growth evaporates if the legal view is adopted. When the exogenous component of banking and stock market development is considered, banking development and stock market liquidity no longer have an independent positive impact on economic growth. However, when running growth regressions with either bank credit or the stock market indicator, the evidence supporting the legal view is much stronger. The authors propose to extend the legal view with additional instruments reflecting societal norms such as the level of trust or risk taking, for such informal institutions might be substitutes for (or determinants of) more formal legal rights. Indeed, in Garretsen et al (2000) societal variables are used alongside legal determinants to explain the cross-country development of stock markets. It appears that both categories of variables are important in explaining market capitalisation.

Finally, Rajan and Zingales (2000) criticise the results of the legal view literature by noting that the level of financial development in developed countries has showed considerable volatility during the last hundred years. This would be hard to explain on the basis of the LLSV (op.cit.) literature, which predicts a constant effect of the legal system on the financial system. The authors find, for instance, that common law countries were not more financially developed in 1913. This is in contrast with the situation during the 1990s, the period that is being researched by LLSV (op.cit.). The authors argue that such variations in financial development over time can be better explained by shifting political coalitions. In particular, they stress the fact that certain domestic incumbents can profit from retarding financial development and may be especially successful in doing so during particular periods.

80 As Beck and Levine (2000, p. 18) mention, their findings are consistent with the Schumpeterian view that financial development allows new firms to develop, thereby stimulating economic growth. See also Beck, Levine and Loayza (2000) who reach the same conclusion using country level data.
81 Ahmed (1998), in his comment on Levine (1998), also stresses the importance of conditioning on the general degree of capital market development. He notes that (p. 616): "Elsewhere, Levine and Zervos (1998) have argued that it is not a question of whether it is banks or stock markets that matter for growth, but that banks and stock markets both matter. However, in the present paper, we do not see a simple regression that contains both proxies for stock market development and bank development simultaneously to convince us of this".
82 See also footnote 76.
83 These variables, taken from Hofstede (1980), relate to social inequality, the relationship between the individual and the group, the relative importance of assertive behaviour ("masculinity") and modest behaviour ("femininity"), and finally ways of dealing with uncertainty.
According to Rajan and Zingales (2000) the explanatory power of time invariant institutions such as the legal environment is therefore probably less important than is suggested by the legal view literature. In the words of the authors (p. 35): "(...) one does not have to have the good fortune of being colonised by the British to be able to have vibrant financial markets".

This and the preceding sections made clear that the relationship between financial system development and economic growth is currently the topic of much research, both theoretical and empirical. Although many questions have so far remained unanswered, considerable progress has been made. A broad consensus has emerged, in that there is a significant relationship between the development of the financial system and long-term economic growth. First of all, theoretical explanations regarding the causality of this relationship have gained force with the ascent of endogenous growth models. Secondly, empirical research has made much progress. In the beginning of the 1990s, the important papers by King and Levine (1993) and Levine (1997) summarised earlier and presented new empirical evidence of a significant correlation between financial development and economic growth. However, this early empirical work was still very vulnerable to the criticism of endogeneity bias related to (reverse) causality. At the end of the 1990s, a new impulse to the empirical literature was given by the seminal article of LLSV (1996). From then on, a host of empirical work starts to focus on the relationship between the legally determined, and therefore exogenous part of financial development and (the sources of) economic growth. Using country, industry and firm level data it is shown that this legally determined part of financial development influences economic growth. Also it is shown that financial structure as such is unimportant in determining growth. Furthermore, financial development seems to specifically influence the possibilities of external financing by new firms and firms that are heavily dependent on external financing more generally. Economic growth may then be stimulated because of the fact that the financing of such (new) firms raises the efficiency of the overall resource allocation.

Further research should now focus on resolving the issue of the causality between financial intermediation and economic growth more robustly. A successful way of doing this might be to focus on this causality on a desaggregated level, either by looking at specific markets or sectors of the economy, or by studying specific countries. After all, financial indicators that try to link financial system development to economic growth on a highly aggregated level sum up many different partial effects and cross-country differences. More insight into the
different channels by which financial development can influence long-run growth may further clarify the until now still not fully understood causality of this relationship. Also, more attention could be paid to the role of informal institutions, such as societal norms, the level of trust, and culture at large. Lastly, it is striking, although understandable taking into account data limitations, that there is only very little, if any, empirical research into the finance-growth link in the Central and Eastern Europe transition economies. This may also be an interesting direction to pursue.

8. *Empirical findings on financial system development and economic growth in transition economies*

In this section we will discuss a selection of empirical work concerning the finance-growth nexus specifically related to the former socialist countries in CEE. Since the theoretical discussion of this topic focused on the role of SBCs and institutional development for economic growth, these subjects will also be emphasised in this empirical section.

During the last decade, empirical research into SBCs in transition economies has been characterised by different approaches. Many empirical studies focus on the question whether SBCs are or have been present during the (early years) of the transition process in a certain country. Hersch, Kemme and Netter (1997) for instance, using micro-level data from a survey amongst medium-sized Hungarian firms, estimate logit regressions to capture the extent to which firm managers perceived difficulties in obtaining bank loans. They conclude that managers who had been members of the former communist *nomenklatura* had the lowest probability of perceived difficulty in getting a loan, at least suggesting the existence of SBCs for this particular group of firm managers. However, the ease of obtaining loans for former *nomenklatura* members could very well be the result of their better education or the fact that their firms are better credit risks, since they were able to "cherry-pick" during the privatisation process.

Budina et al (2000) use a different approach to estimate the importance of SBCs. Their estimation method is based on testing the dependence of Bulgarian firms on external financing for investment. This method in effect estimates how much reality deviates from the Modigliani and Miller-theorem (Modigliani and Miller, 1958), which poses that in perfect capital markets the firms capital structure is irrelevant and firms are indifferent between internal and external financing. However, asymmetric information may lead, at least for
certain firms, to a difference between the internal and external finance premium. This
difference in premiums, which was discussed more elaborately in section 2, leads to a
situation in which investments for firms with high information costs are not only determined
by expected profits but also by the availability of internal funds. The extent to which the
presence of internal funds matters can be estimated by an accelerator type reduced form
investment equation (Hubbard, 1998):  

\[
(I/K)_i = \beta_0 + \beta_1 f(X/K)_i + \beta_2 g(L/K)_i + \varepsilon_i
\]

in which \(i\) denotes the \(i^{th}\) firm, \(I_i\) is gross investment, \(X_i\) denotes the standard variables that
determine investment opportunities (often sales), \(L_i\) represent the liquidity variables (often
cash flow), \(K_i\) is the capital stock of firm \(i\) used as a scalar to avoid heteroscedasticity, and
finally \(\varepsilon_i\) is the error term. In short, a significant coefficient \(\beta_2\) indicates that internal finance
matters for investment. The equation can be estimated for different sub-samples of firms,
based on theoretical priors concerning whether they are liquidity constrained or not. Using
this approach, the empirical research by Budina et al (2000) shows that on the whole
Bulgarian firms were liquidity constrained during the sample period (1993-1995), which
would be expected taking into account the underdeveloped capital market. However, heavily
indebted firms and firms with a negative cash flow turned out not to be liquidity constrained.
Although in Western economies, such insignificant liquidity constraints would be interpreted
as a low level of asymmetric information problems, in the case of highly indebted firms in
transition economies such an interpretation is less plausible. The authors conclude that the
absence of an external finance premium in this particular case must be interpreted as
reflecting the presence of SBCs.

Finally, Frydman et al (2000) apply a rather direct method of estimating SBCs. The authors,
using data on small and medium-sized enterprises in the Czech Republic, Hungary, and
Poland, estimate a firm's creditworthiness as its probability of default. This probability is

84 Perotti and Gelfer (1998) use a similar approach (Q-type reduced form investment model) to estimate financial
constraints in Russian industrial-financial groups. They conclude that members of such groups are less
dependent on internal funds to finance their investments. For an overview of different investment models in a
framework of imperfect markets, see Lensink et al (2001).

85 Please also refer to Figure 2. When \(\beta_2\) turns out to be significant, this means that the category of firms
concerned is being faced with an upward sloping S-curve.

86 According to Calvo and Coricelli (1993), Dittus (1994), and Schaffer (1998), in all three of these countries
budget constraints on loss-making firms did harden during the first years of transition.
assumed to depend on two variables: the firm's ability to pay (proxied by revenue growth), and the firms willingness to pay (proxied by the firm's ownership type). The results of the study show that SOEs did have both a lower ability and a lower willingness to repay, especially with regard to bank and tax credit. Furthermore, the authors presume a firm's willingness to repay as partly stemming from the "hardness" or "softness" of the creditor's treatment. The softness of creditors is then estimated by regressing the level of arrears on both total revenues and the government type of the firms. Assuming that closing credit lines, instead of raising interest rates, was the main method of creditors to ration credit, the level of arrears that certain firms were allowed to run up provide an indication of the creditor's potential contribution to the firm's unwillingness to repay. The empirical results show that the unwillingness of SOEs to repay was in part due to the fact that state-creditors favoured SOEs by applying softer credit terms, thereby decreasing these firms' willingness to pay. On the one hand, such SBCs could be the result of "old boy networks" or political influence on credit policies, but on the other hand state-creditors might just as well have behaved more rationally, by basing their decisions on expectations that SOEs would start to perform better after privatisation. In both cases, however, the softness of state creditors leads to a declining willingness of SOEs to repay their debts. The authors therefore stress the importance of the simultaneous hardening of budget constraints and privatising/restructuring state-owned firms.

Schaffer (1998) points to some general pitfalls in measuring SBCs. Most important is the fact that many firms in transition economies base their profit- and loss-accounts on historical cost accounting, which can potentially lead to large inflation biases. Furthermore, it is difficult to make a distinction between SBCs and "normal" subsidies that are part of the price system. Also, loss-making firms that receive financing do not provide any proof of SBC since such firms may be expected to return to profitability in the near future. Also, they might be economically loss-making because of a high debt burden, while the firm is generating enough cash-flow to service its (new) debt. Only when a firm is highly indebted and making losses

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87 When regression estimates show significant coefficients for both the revenue variable and the ownership variable, the authors' interpretation is that different kinds of firms (with regard to ownership structure) show different default probabilities, even when controlling for their ability to repay. The resulting difference in default risks is then assumed to be the result of a difference in their willingness to pay.

88 (Expectations about) creditors' behaviour can thus influence the firm's willingness to repay. This empirical interpretation is somewhat deviant from the theoretical Berglöf and Roland (1998) model in which firms' expectations about creditor "softness" reduce their effort and thus, in the end, their ability to repay. The authors give the example of state-owned firms. If the fact that a certain firm is state-owned not only partially explains the likelihood of a firm's default but also the level of its overdue bank debts, then the banks did not take properly account of state ownership as an indication of higher default risk and banks were "soft" in extending credit to this type of firms.
because of that and this firm has a negative operation profit, the possibility of a non-paternalistic creditor which is rescuing the firm because of its positive operation profit can be ruled out (Schaffer, 1998, p. 86). Even then, the existence of SBCs is not clear, since the firm could very well survive for a long time by running down inventories and cash deposits, without obtaining new cash form creditors. In his paper, Schaffer (1998) concludes that overdue trade credit has not typically been a source of SBCs in transition economies: firms apply hard budget constraints to each other. Also, the evidence regarding SBCs applied by banks seems to be rather weak: large and growing stocks of bad debts do not provide convincing proof of actual net financing from banks to firms. In his paper, Schaffer (1998) concludes that overdue trade credit has not typically been a source of SBCs in transition economies: firms apply hard budget constraints to each other. Also, the evidence regarding SBCs applied by banks seems to be rather weak: large and growing stocks of bad debts do not provide convincing proof of actual net financing from banks to firms. However, tax arrears are identified by Schaffer as being the most important form of SBCs in transition economies.

The model by Bergström and Roland (1997), as discussed in section 5, already showed that the simultaneous hardening of budget constraints (credit crunch) for new firms and the persistence of SBCs for current clients is theoretically possible. Empirical indications of credit crunches in post-socialist transitional economies should therefore not be regarded as providing proof that SBCs are insignificant. Two empirical articles that point to the hardening of budget constraints during the early stages of transition are Calvo and Coricelli (1993) and Dittus (1994). In the former paper, the authors show that it cannot be ruled out that the sharp output contraction in Poland in the early transition period was partly the result of a credit crunch. Interestingly, the authors conclude that in Poland, where data availability is relatively good, inter-enterprise credit behaved differently post-reform than it did pre-reform. While pre-reform bank credit and inter-enterprise credit normally moved in opposite directions, these variables tended to be positively correlated after the reform. Inter-enterprise credit thus reinforced rather than cushioned the contraction in bank credit, confirming the results by Schaffer (1998). The article by Dittus (1994) argues that bank behaviour in Hungary, Poland, and former Czechoslovakia did change significantly in 1992 due to both improved bank regulation and supervision and the (resulting) appearance of substantial bad debts.

90 In line with this, Cull and Xu (2000) conclude that Chinese banks imposed harder budget constraints on state owned enterprises than did bureaucrats. Although Chinese banks are to a large extent state-owned, their staff experienced at least some incentives to grant loans on a profit-maximising basis. Their measure of SBCs is, however, rather indirect, as they estimate the influence of bank lending and direct government lending respectively on the productivity of SOEs.

91 Pawlowska and Mullineux (1999) corroborate the result that credit to Polish small- and medium-sized enterprises (SMEs) was rationed during the early phase of the transition process. The authors argue that credit rationing to SMEs was especially important during early transition since this period was characterised by high uncertainty, sizeable asymmetric information problems, an underdeveloped financial system, and a government with a high financing need.
loan portfolios. On the whole, enterprises paid banks more in interest than they received in loans, pointing to a hardening of budget constraints. The article furthermore confirms the earlier mentioned empirical results that inter-enterprise debt did not grow as a reaction to tighter bank credit.\footnote{Perotti (1998), however, provides evidence that credit tightening in Russia, Romania and the Ukraine led to considerable increases in trade arrears, even forcing the governments in these countries to bail-out firms.}

It is interesting to note that both the literature on SBCs in CEE and the literature on credit crunches in these countries point to the importance of the limited capacity of banks in evaluating risks in a market-oriented environment. Although many formal institutions such as financial regulation and supervision have been updated relatively fast, informal institutions such as the attitude of bank employees concerning commercial lending criteria, have evolved only very slowly. This makes clear that the SBCs of existing, often large state-owned enterprises, and the low credit supply for new enterprises can essentially be traced back to the same underlying and poorly functioning informal institutions. Because of the lack of financial skills, knowledge, and a commercial attitude, funds are channelled to existing (state-owned) clients, often with higher credit risks, while new firms are excluded from finance.\footnote{See also Thorne (1993). Note that in the theoretical model by Berglöf and Roland (1997, 1998) limited commercial skills can play a role, without meaning that banks are behaving irrationally. The model shows, for instance, that the absence of screening technology (with can be interpreted as "low skills") causes the average quality of projects that banks encounter to be relatively low, thereby leading to a situation in which banks can simply not credibly commit not to refinance projects.} Such misallocation of scarce resources may hinder the establishment of new small-scale private firms, which is often deemed necessary for generating sustainable economic growth.\footnote{Carlin and Richthofen (1995) claim, for instance, that the success of East German integration with the West depends on the growth of the small and medium-sized firm sector and the availability of external financing for this sector (p. 178).} This contention seems to be empirically supported, at least for the case of Bulgaria, by Claessens and Peters (1997) and the aforementioned paper by Budina et al (2000). In the first paper, the authors show that small SOEs have been forced to adapt to the new economic reality since banks have been applying harder budget constraints. However, a sample of large loss-making state-owned enterprises, notably in the electricity and coal sectors, makes up for the bulk of the operational losses in Bulgarian firms. The loss-making of such firms was persistent in that their past loss-making helped to predict current loss-making, reflecting the adverse effects of SBCs on these firms' incentives to restructure. In the end, the small group of loss-making SOEs has effectively crowded out the profitable public and private firms, affecting both
economic growth and the health of the banking sector negatively in doing so.\textsuperscript{95} The paper by Budina et al (2000) adds additional insight into the relevance of SBCs in Bulgaria, by showing that especially state-owned banks (SOBs) provided credit to the loss-making SOEs. The implicit prospect of refinancing and the fact that collateral was often not present, stimulated moral hazard behaviour by large SOEs.\textsuperscript{96}

Equation (8) from the Berglöf and Roland (1998) model (see page 34) shows that low collateral value of current clients softens their budget constraints since banks will tend to refinance their projects instead of financing new and more risky firms. Pawlowska and Mullineux (1999) provide survey results indicating that banks, when financing Polish SMEs (over)relied on collateral. Because of their limited capabilities in judging the uncertain cash flows of new firms, Polish banks were willing to finance only when collateral was abundant.\textsuperscript{97} Interestingly, Pawlowska and Mullineux, on the basis of their empirical results, and Berglöf and Roland (1997), on the basis of their theoretical model, derive very similar policy recommendations, although from a different point of view. According to Berglöf and Roland, the government could, in the absence of assets that can be collateralised, provide partial loan guarantees. In that way, liquidation values will increase and banks' threat to liquidate will become more credible. These authors thus stress that loan guarantees will harden the budget constraints of already financed firms. Pawlowska and Mullineux also recommend a system of loan guarantees. They point to the fact that banks' limited know-how inhibits them from making loans to (new) SMEs, a sector which in their view is essential in stimulating economic growth. These authors thus stress the fact that loan guarantees will soften the budget constraints of new firms. The authors prefer such loans to be disbursed by specialist SME-banks, (initially) staffed by experts from abroad, as the local banking expertise is too limited.

This bring us to the topic of how capable commercial banks in CEE actually are in playing the role of intermediary between borrowers and lenders. First of all, Dittus (1994\textsuperscript{th}) poses that any conclusions about the role banks could play in monitoring and controlling enterprises in CEE can only be very tentative due to the lack of reliable data. Nevertheless, he concludes that the

\textsuperscript{95} Frydman et al (2000) provide empirical results for the Czech Republic, Hungary and Poland, showing that banks imposed softer budget constraints on SOEs then on private firms during the first stages of the postcommunist era.

\textsuperscript{96} In accordance with the model of Berglöf and Roland (1997, 1998) as discussed in section 5.

\textsuperscript{97} Carlin and Richthofen (1995) corroborate these results for East Germany, where enterprises complained that collateral requirements were excessively stringent. Banks placed great emphasis on collateral since there was no business history available for most firms and the general economic uncertainty was high.
involvement of banks in corporate governance and restructuring is not without risk, since it will take a considerable length of time before banks will have increased their capacity to evaluate risks and monitor borrowers in a commercial way. Thorne (1993) shows that new private Polish banks and similar banks from the former CFSR increased their credit to the private sector faster than did the state-owned banks. Such newly established banks turned out to be not only more efficient in terms of credit allocation, but also in terms of the interest rates charged. Sdralevich (1997) specifically mentions three conditions which should be fulfilled before effective bank governance in transition economies can be possible. First, state-ownership of the banking system should be minimised in order to let banks focus more on profit-maximisation. Secondly, the rules of the game, in the form of both an adequate, transparent, and enforceable legal system and effective supervision are called for. Lastly, there should be negative pay-offs to bad governance. This means that there must be a credible threat of bank failure and at the same time bank shareholders must expect the possibility of an economic loss. Increasing financial discipline by means of hardening the budget constraints of both firms and banks thus seems an appropriate way of stimulating the functioning of the corporate sector in transition economies, as entrepreneurs will increase their efforts in view of the increased threat of liquidation. However, Frydman et al (2000) argue that, although cost management may be improved, financial discipline is not a sufficient condition for stimulating other important entrepreneurial characteristics such as creativity and the readiness to accept risk. However, such characteristics are largely based on informal institutions which will develop only slowly. Empirical research into the relationship between such informal institutions and financial development (and ultimately economic development) in CEE is, to date, not available. However, there is some empirical evidence with regard to the direct relationship between institutions and economic growth in CEE (thus not by way of determining financial development).

Moers (1999) provides a survey of empirical research into the relationship between institutional criteria and economic growth. He focuses especially on transition economies, since these countries are characterised by a large-scale process of institutional transformation. Although the old institutional structure from the era of state socialism is to a large extent removed, a new market infrastructure is not yet (fully) implemented, resulting in an institutional vacuum or institutional void (Raizer, 1997). This may hamper economic growth, since adequate institutions are assumed to guarantee ownership rights and to minimise transaction costs. According to Moers (1999), explicit attention to transition economies is
only given in Brunetti, Kisunko, and Weder (1997a,b,c,d). An interesting result from these studies is the fact that there does not seem to be a robust relationship between a “credibility measurement” of the institutional environment and growth, when controlling for inflation.98 For more recent periods, however, institutional credibility is better correlated with economic growth, thereby leading the authors to the conclusion that institutional factors become more important for economic growth in transition economies when most of the macroeconomic instability related to the initial transition shock(s) is over. These results contrast with those found by Johnson et al (1999), in the sense that the latter show that weak property rights limit the reinvestment of profits in startup manufacturing firms. Especially during the early stages of transition, retained earnings appear to have been enough to finance the investments managers wanted to make. These results do not imply that a well-functioning financial system is unimportant for investment and growth. However, the authors’ line of thought is that when property rights are insecure, credit may be inessential. This is the case since managers will invest little, even if they are able to borrow, because they estimate that there is a high chance that their returns will be captured by bureaucrats or lost in commercial disputes. Combined with the fact that retained earnings were often abundant during the early stages of transitions - due to unfilled demands and restricted competition - Johnson et al conclude that financial institutions only start to matter when property rights are perceived to be secure.99 The policy implication they thus derive, is that securing property rights is more urgent than setting up financial institutions.

As mentioned earlier, the survey by Moers (1999) only deals with studies investigating the direct relationship between institutional factors on the one hand and economic growth and investments on the other. The possible links between institutional factors and financial development (and ultimately also economic growth) are not being discussed. Raiser (1997, p. 98 This credibility measurement is based on private sector surveys asking local entrepreneurs how credible they thought the quality of certain institutions was. More specifically, the following categories were discerned: the predictability of changes in laws and policies, the reliability of law enforcement, the impact of discretionary and corrupt bureaucracies, and the danger of policy reversals due to changes in governments. 99 It is interesting to note that this paper corroborates the legal view in an unusual way. While in most of the legal view literature, institutional structures are important because they influence the availability of external finance, the paper by Johnson et al (1999) connects the legal view with the availability of internal finance and the demand for external funds. The authors explicitly use a pecking order model (see also footnote 18) to describe the financing behaviour of CEE-firms. The pecking order hypothesis is of special interest for CEE-countries, as information sources are missing and investment uncertainties are high. This will lead to more information asymmetries and a higher external financing premium. Also, external financing makes it hard for firms to hide their activities from tax collectors or the maffia (Johnson et al, 1999). Firms will therefore prefer internal above external financing. More specifically, the authors conclude that a lack of secure property rights does not lead to a
25) notes, however, that soft budget constraints can amplify the institutional void in transition economies. This is the case since SBCs will lead managers of state-owned enterprises to invest in their political networks rather than new customer networks. This will in turn increase transaction costs for managers who are willing to undertake behavioural adjustments.

9. Conclusions and topics for further research

In this paper we have given a concise overview of the most important economic literature in the field of the so-called finance-growth nexus, with a special emphasis on the transition economies in Central- and Eastern Europe. First, it was shown that when trying to estimate the importance of financial development for economic growth, the standard neo-classical equilibrium framework is of little use. In such a world of unbounded rationality, financial intermediaries are superfluous and financial structure simply does not matter. However, when some of the neo-classical assumptions are adapted and brought more in line with economic reality, the theoretical importance of the financial system will increase accordingly. When market imperfections, such as asymmetric information and transaction costs, are taken into account, the existence of financial intermediaries and financial markets becomes understandable. This is of special importance in the case of CEE, where everyday economic life only gradually begins to come close to western-type market economies (which are themselves only a very imperfect approximation of neo-classical perfect and complete markets). In a general discussion of the theoretical influence of the financial system on economic growth, it was shown that financial development can have a positive long-run impact on growth. Within a neo-classical growth model, this is only possible if financial development leads to a permanent process of technological progress, whereas in an endogenous growth model higher savings can stimulate long-term economic growth as well. In the latter category of models the role of financial intermediaries can be explained theoretically: they can both increase the marginal productivity of capital and the exogenous propensity to save. Also, their efficiency in transferring funds from surplus to deficit households determines the savings leakage. Such theoretical explanations seem to bear special relevance for transition economies. They show that, at least in theory, financial intermediaries such as banks can play an important role in stimulating savings and increasing the marginal productivity of capital by allocating savings to the right investment opportunities. When such tasks are performed efficiently by the banking sector, economic growth may increase even in lower supply of external funds, but to a lower demand of external funds, since managers have little incentive to invest. Also, they prefer to use the available internally generated funds first.
the long-run. However, besides financial intermediaries such as banks, financial markets may start to provide such functions as well. The relative success of markets and intermediaries depends on how efficient they are in overcoming market imperfections. Also, one should realise that (in)formal institutions in transition economies play an important role too in deciding the future success of both banks and financial markets. At the moment, banks have a clear lead on financial markets when it comes to providing funds to firms. An important contributory factor to this situation has been the fact that during socialist times only state-owned banks provided firms with funds, while at the same time official financial markets did not exist. Especially the (former) SOEs still regard banks as the natural way of attracting external finance. Thus, even though banks could have some clear disadvantages, such as the allocative inefficiency which is the result of SBCs, path dependency may ensure that banks will continue to take the lead in many transition economies for quite some time. To some extent, banks are important in CEE at this moment in time simply because they were the only way of external financing during communist times.

Empirical evidence broadly confirms the positive role financial development can have for economic growth. In recent studies, this result is further detailed by showing that especially the part of financial development that can be explained by the legal system of a certain country is decisive for future growth. It is the legal structure and the accompanying (enforcement of the) rights of creditors and investors, that influences growth rather than the question how market- or bank-based a certain financial system is. More specifically, (legally determined) financial development seems to promote growth especially by raising the efficiency of resource allocation. This empirical result underlines the importance of research into the role banks play in CEE and especially into the relevance of SBCs. Empirical research indicates that SBCs may persist for some time and result in a situation in which inefficient SOEs keep receiving funds, while at the same time new and innovative firms are faced with a credit crunch. Such behaviour, which is to a large extent the result of informal institutions inherited from the socialist era, prohibits banks to play the growth-stimulating role which would be expected on the basis of both certain endogenous growth models and empirical results for non-CEE countries. In order to gain insight into the role banks have played and still are playing at this moment, more empirical research is needed. A promising avenue for further empirical work may be to expand the legal view literature, in order to be able to assess the importance of (changes in) legal systems for financial development and economic growth.
in CEE. At the same time, more attention should be paid to the influence of informal institutions, such as the level of trust and other societal norms.

Given the important role the banking system has in providing external finance to enterprises, it would furthermore be interesting to be able to make a clearer distinction between different types of banks. This is especially relevant, given that in recent years many large CEE-banks have been privatised and subsequently sold to foreign strategic investors. Additionally, foreign banks have opened branches and subsidiaries *ex novo* in CEE or have started to provide cross-border finance to CEE-enterprises from their home countries. Empirical evidence concerning the role such different types of "foreign" banks play in CEE-countries is currently not available.\textsuperscript{100} Research into this field is therefore a promising area. It would be of particular interest to know what role, if any, foreign banks play in diminishing SBCs for certain categories of firms while at the same time allowing other firms to attract more external financing.

\textsuperscript{100} An exception is Buch (1997). There exists an extensive literature on the role foreign banks play in other countries, see for instance Cardim de Carvalho (2000), Dages et al (2000), Peek and Rosengren (2000), and Claessens et al (1998).
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