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Financial Systems - Importance, Differences and Convergence

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Financial Systems – Importance, Differences and Convergence[**]

Abstract

This paper provides an overview of conceptual issues and recent research findings concerning the structure and the role of financial systems and an introduction into the new research area of comparative financial systems.
The authors start by pointing out the importance of financial systems in general and then sketch different ways of describing and analysing national financial systems. They advocate using what they call a "systemic approach". This approach focuses on the fit between the various elements that constitute any financial system as a major determinant of how well a given financial system performs its functions.
In its second part the paper discusses recent research concerning the relationships between financial sector development and general economic growth and development. The third part is dedicated to comparative financial systems. It first analyses the similarities and, more importantly, the differences of the financial systems of major industrialised countries and points out that these differences seem to remain in existence in spite of the current wave of liberalisation, deregulation and globalisation. This leads to the concluding discussion of what the systemic approach suggests with respect to the question of whether the financial systems of different countries are likely to converge to a common structure.

Key words: Financial sector, financial system, growth and development, convergence
JEL classification: G32, G34, G38

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I. Comparative Financial Systems as a New Field of Research and Policy

Since about 15 years, the notion has become more and more widely accepted that financial systems are an important field of public policy and of academic research. The underlying assumption behind this "discovery" is that in some sense the "quality" of a country's financial system is important. This new conviction is reflected in the fact that policy makers have started to be concerned about improving the financial systems for which they have a certain responsibility. In the European Union almost all elements of the so-called financial sector action plan have recently been implemented. International organisations like the World Bank, the EBRD and the IMF have for quite some time spent a great deal of their effort and money on helping to improve the financial systems of countries on which they have some influence.

However, there are a number of problems coming with this "discovery" and the apparent consensus. One can summarize them by stating that it is not at all clear what it means to say that financial systems are important, why this statement should be true and relevant; and what policy implications it might have. What exactly is a financial system? What determines its quality? Are there any general standards for evaluating financial systems? For whom and for what are financial systems and their quality important? Is there a solid theoretical or empirical basis for the assumption that the quality of a financial system is indeed important? And what can policy makers do to improve a given financial system?

Most of the work by academics and practitioners on financial systems has taken empirical observations and practical problems as its starting point. Among other things, the frequency and severity of financial crises in the period after the demise of the fixed exchange regime of the Bretton Woods system spurred this interest. Another factor is that in many countries the financial system has undergone dramatic changes in recent years. There was a wave of liberalisation and deregulation of national financial systems in the 1970s and 1980s, followed by a wave of re-regulation in the next decades. Yet the economic, social and political consequences of these developments are difficult to assess on a general scale.

A comparative perspective is very fruitful for the study of the questions listed above. If one looks at different countries, one can easily see that their financial systems differ considerably. This diversity has existed for a long time, and at least in some cases it has remained after the turbulences of the past decades and in spite of the possible pressure of growing international integration and competition to adopt what might be the single best financial system. This observation is obviously important for relevant policy efforts. Does it mean that some

countries have good financial systems while others have not? And if this is the case, what prevents the countries with a bad financial system from adopting a better one? Or does it rather imply that what is a good financial system for one country may not be a good system for other countries? It is the purpose of this paper to provide a short survey of recent research concerning financial systems in general and the diversity of national financial systems in particular.

We start with an attempt to define what a financial system is and by looking at different ways of describing and analysing financial systems (section II). Then, in section III, we take a look at the existing theoretical and empirical arguments concerning the questions of why, for what and for whom financial systems may be important, before we embark on discussing differences between countries' national financial systems in Section IV. The concluding section V is dedicated to the question of how financial systems develop over time and discusses whether one can expect that the financial systems of different countries are likely to converge towards what may be the best type of a financial system.

II. How to Define and Analyse a Financial System

1. Finance is more than capital

For decades economists have disregarded finance as a genuine topic. Even when they used the term finance what they meant was almost always capital. The underlying concept of capital was that of real capital. Real capital is a stock of resources that can be applied as an input into future production allowing economic agents to use other resources more productively. Machinery, roads or even accumulated knowledge are real capital in this sense, even if they are measured in monetary terms. Not finance but capital figures in conventional growth theories; and the transfer of capital to so-called developing countries and possibly to certain so-called target groups has been the dominant approach of development policy for decades.

Of course, capital in the sense of real capital is important for any economy. But finance is more than capital, and it is a different concept. It is concerned with how economic agents in a given society can and do make intertemporal choices, and with intertemporal relationships between economic units. Finance is about how economic agents carry over income and consumption opportunities from one time period to later time periods, that is, how they save or accumulate and hold wealth and how they invest; about how agents finance investments; and how they deal with risk. Many of those who now say that finance is important refer to this concept, and that is why it should also shape the definition of the term financial system.

2. A financial system is more than the financial sector

Building on a broad concept of finance, the concept of a financial system is also broad. It covers the ways in which financial decisions[1] are made, and can be made and implemented, and in which financial relationships are designed and implemented. The description of the financial system of a given country or region is contained in the answers to the questions of which opportunities the economic agents in this country or region have, and use, to accumulate wealth and to transfer income into the future, to fund investment projects and to manage risk. Thus, the conceptual starting points are financial decisions and activities of non-financial firms and households.

In most economies, many financial decisions and relationships of the households and the firms involve banks, capital markets, insurance companies and similar institutions in some way. In their totality, those institutions that specialise in providing financial services[2] constitute the financial sector of the economy. Of course, the financial sector is a very important part of almost any financial system. But it should not be taken for the entire financial system. Only some 15 years ago, there were some parts of the so-called developing world and some formerly socialist countries in which almost no financial institutions existed or operated, and still people saved, invested, borrowed and dealt with risks in these countries and regions. Thus there can in principle even be financial systems almost without a financial sector. But also in advanced economies, many financial decisions and activities completely bypass the financial sector. Examples are real saving[3], self-financing and self-insurance and informal and direct lending and borrowing relationships.

One can also illustrate the distinction between the concepts of the financial sector and the financial system by invoking the distinction between supply and demand. The financial sector only encompasses the supply of financial services while the financial system includes both supply and demand and the way in which supply and demand are matched. The broader concept suggests looking not only at the institutions of the financial sector but also at those decisions and relationships that give rise to a demand for the services of the financial sector as

[1] Financial decisions and financial relationships are those involving different points in time or different time periods.

[2] The provision of loans and equity participation is one among several financial services; others are payment transfers, deposit taking and security transactions, just to name the most important ones.

[3] Building a house or growing a tree or a hedge and even feeding the proverbial "savings pig", that is, putting money into the "piggy bank", and raising children are forms of real saving and investment that do not involve the financial sector. Incidentally, this explains why they are particularly wide-spread in countries whose financial sector is not well developed.

well as those that do not involve the financial sector at all. Especially if one analysed financial systems in a comparative perspective, it could be misleading if one overlooked self-financing of investment, real savings, self-insurance and direct financing and investment.

There is also a second dimension in which the concept of the financial system is broader than that of the financial sector. Financial flows are mirrored in flows of information and flows of potential and actual influence. From the perspective of the so-called new institutional economics, there are obvious reasons why this is so, and it is also obvious that financial flows, information flows, and flows of influence are interdependent. Each of the three types of relationship plays a key role in determining the nature of the other two types. Actual and potential flows of information and influence constitute the essence of "the corporate governance system". As finance without corporate governance would scarcely be possible, the corporate governance system is therefore an integral part of any financial system.

3. Three conventional ways of analysing a financial system

There are several approaches of describing and analysing the financial system of a country or a region. One approach, which one may call the institutional approach, is largely descriptive, focusing on the financial institutions that exist or, as the case may be, fail to exist in a country. Even if such a description is supplemented by an analysis of how these institutions perform their respective functions and how well they do this, this approach does not lead to the analysis of a country's financial system but merely of its financial sector. Nevertheless, it is useful since it generates relevant information, and it may be sufficient to show that national financial sectors differ very much.[4]

The second approach is the intermediation approach. It goes back to early work by Gurley and Shaw (1960), and focuses on how the funds of the so-called surplus units in an economy, the savers, are channelled to the so-called deficit units, the investors, and analyses the extent to which banks and other financial intermediaries are involved in this transfer of resources. As is well known, intermediaries facilitate the intertemporal exchange of resources between savers, mainly households, and investors, mainly the non-financial firms, by reducing transaction costs. But intermediation also performs other functions. It allows a transformation of lot sizes,

[4] A recent paper by Allen et al. (2004) that contains a descriptive comparison of the financial systems of the United States, Great Britain, Germany, Japan and China may serve as an example to show how valuable this approach is for a comparative analysis.

maturities and risks and thereby reduces the conflict of interest that exists between savers/financiers and investors/borrowers and makes external financing difficult.

This approach was originally conceived to understand and measure the role of intermediaries, but it can easily be extended to include the role of financial markets. Like intermediaries, organised financial markets perform some transformation functions and thereby facilitate investment and financing. Evidently this approach does not only look at the financial sector but covers the entire financial system, though it does this in a rather simple way. In spite of this limitation, it yields interesting insights. For instance, by studying countries' so-called intermediation ratios one can show that the role of banks as intermediaries differs widely between countries and gives rise to corresponding differences between the financing patterns in these countries. In countries in which banks play an important role as intermediaries, the share of bank loans in firms' external financing is also high.[5]

The third approach goes one step further and generalises the idea of looking at how certain financial functions are fulfilled in an economy. This is the so-called functional approach, which has been championed by Merton and Bodie in a series of papers. Any financial system has to fulfil certain functions. They include the transfer of resources across space and time and the transformation of claims and obligations (as already captured in the approach of Gurley and Shaw) as well as the allocation of risk, the provision of information, the easing of incentive problems and, last but not least the provision of a payment mechanism. The fundamental idea of the functional approach is not that a financial system has to perform these functions but rather that, while these functions are largely the same at all times and in all countries or regions, the institutional arrangements through which they are fulfilled vary greatly across time and space.[6]

4. Finance as a system

All three approaches described so far have their merits and limitations. Each one of them yields valuable insights for the comparative study of financial systems. However, for none of them, there is a reason why one should speak of financial *systems* and not merely of finance.

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[5] See Schmidt et al. (1999) for a comparative study of the role of banks as intermediaries, and Hackethal/Schmidt (2004) for a new method of measuring the patterns of firm financing in different financial systems.

[6] See Merton/Bodie (1995) for a programmatic exposition of this approach. The work of Allen and Gale (2000), and even more Allen/Gale (2001) follows a similar approach, that is, they focus on the functions of financial systems, even though these authors would certainly not subscribe to the Merton-Bodie view that institutional differences are more or less coincidental and not really relevant. In fact, they hold the opposite view.

This insight has given rise to a fourth approach of describing and analysing financial systems which can be called the systemic approach. The label serves to highlight that, and how, the various elements of any financial system are related. For instance, the dominant role of capital markets in the financial system of the United States is fostered by, and in turn also fosters, the strong reliance of non-financial firms on capital market financing, the existence of large and well functioning stock exchanges, the wide dispersion of share-holdings, the high level of information disclosure to the general shareholding public, the high level of investor protection and a corporate governance system that makes the maximization of the share price and the wealth of shareholders the supreme and even the exclusive objective of listed corporation.

One can capture this idea of the elements of a system being mutually supportive with the twin concepts of complementarity and consistency. We speak of complementarity if the different elements of a given system can take on values such that they mutually reinforce their positive effects and mitigate their negative effects on whatever may be the performance standard of the system as a whole. In simple words this says that much depends on how well the individual elements of the system fit together. Complementarity is a characteristic of any true system. In the course of the 1990s, its importance has been demonstrated by different authors in fields as far apart as corporate strategy (Porter, 1996), the organisation of industrial production (Milgrom/Roberts, 1990) and corporate governance (Hoshi, 1998, and Schmidt, 2004). That financial systems have this property can be shown in formal models (Hackethal, 2000, Aoki, 2001) or in a more intuitive way as in Hackethal/Schmidt (2000).

Complementarity denotes a potential, namely that of achieving some benefit from having system elements well adjusted to each other. This potential is not always realised. This leads to the twin concept of consistency. We call a system consistent if its elements take on values that exploit the potential resulting from complementarity. Describing and analysing a financial system with the systemic approach consists in investigating which forms of complementarity and consistency exist and to which consequences this leads.

As it seems, the systemic approach is very useful for the study of financial systems and their development over time. It allows a deeper understanding of how a given financial system functions, what its mechanisms are and on what its stability and efficiency depend. Moreover, it helps to see whether “essential” differences exist between two or more financial systems and whether a given financial system changes or has changed in a fundamental way. There are indeed fundamental differences between the financial systems of different large economies, and in many cases these differences have remained surprisingly stable for a long time.

Complementarity is also likely to have an effect on the way in which financial systems develop over time. We will come back to this topic in Section V below.

5. The typology of financial systems

For many years, students of financial systems have used classifications to characterise financial systems. The idea behind any classification is that of a typology. A classification makes sense if there are certain types of financial systems; the number of existing types is small; the types are clearly different; and real financial systems conform more or less to one of these types. The types are idealised descriptions of how the elements of a financial system can fit together. Using the terminology of the systemic approach one could say that types of financial systems are consistent combinations of financial system elements.

In recent years, the common classification or typology distinguishes only between two classes or types of financial systems:[7] the bank-based financial system and the capital market-based financial system. As the name indicates, banks play the dominant role in a bank-based financial system. They are important providers of financing for firms, and conversely, firms depend to a large extent on bank loans as a source of external financing. Banks are the most important deposit takers within the system. Bank-client relationships with firms are close, most firms have their "house banks", and conversely banks play an active role in the governance of non-financial firms and in the event that a firm runs into serious financial difficulties. Banks are organised as true universal banks, and they dominate the entire financial sector.

The corporate governance regime in bank-dominated financial systems is pluralistic and stakeholder-oriented and allows different stakeholder groups, including banks, to play an active governance role. The stock market is not a fundamental element of a bank based financial system since it does not play a major role in firm financing nor as a "market for corporate control". The possible fact that market capitalisation and transaction volumes may be high and that secondary market trading may be very efficient does not imply that a given financial system is not bank-based.

A capital market-based financial system is the polar opposite. Not banks but capital markets are the main sources of financing for firms and serve as the places where households place a

[7] That there are just two types of financial systems is a recent phenomenon. Only a few years ago, the socialist countries had their own type of financial system; and at that time many other countries had financial systems in which the respective state played a crucial role. The liberalisation and privatisation wave of the 1980s and 1990s has lead to the disappearance of the former state-dominated financial systems as a type of its own.

large part of their savings. Bank lending is rather restricted in terms of volume and maturities. Bank-client relationships are typically not close but rather at arm's length, and banks do not have an active role in corporate governance and in the restructuring of firms that find themselves in financial difficulties. In a capital market-based financial system banks are often specialized either by law or tradition. Even if universal banking is allowed, banks are still specialised or organized in a way which neatly separates their investment and commercial banking activities.

Non-bank financial intermediaries play an important role in capital market-based financial systems. They are important depositories of household savings, including retirement savings, and they invest a large part of their assets in the stock market. Personal and institutional relationships with clients are not essential in such a system since markets dictate the prices and are the main medium for directing transactions. Investor information and investor protection are more important and more highly developed than in a bank-based financial system. Corporate governance is consistent with the rest of the financial system. Banks do not play an active role. Instead, the most important governance mechanism is the control of management through market forces including the "market for corporate control". As a consequence, corporate governance in a capital market-based financial system is not stakeholder oriented but shareholder oriented.

As one can easily see, the two types of financial systems are fundamentally different. But each of them is in itself a consistent system. This raises interesting questions concerning the relative merits of the two system types, competition between them and the possible convergence of real financial systems. One may wonder whether it is possible to state that one of the two types of systems can generally be assessed as being superior to the other. Currently many observers seem to be inclined to think that the capital market-based system is superior. And if this is so, one may then ask whether countries that so far have largely bank-based financial systems are under pressure to also adopt a capital market-based financial system. We will come back to this question in the concluding section of our paper.

III. Financial Systems, Growth and Development

1) Finance and growth

a) Finance as a forgotten and rediscovered source of growth

Understanding the effects of finance on economic growth and development is necessary for anyone who wants to shape finance-related policies or to assess such policies. Already in the 19th century, Walter Bagehot, a British journalist and the editor of "The Economist", stated

that the quality of the British financial system was a cause of the economic success that Britain enjoyed at that time, since it permitted talented individuals who were not wealthy to become entrepreneurs. A similar point was made 50 years later by the Austrian economist Joseph Schumpeter. The central figure in his well known theory of economic development (1912/1934) is the innovator, the dynamic entrepreneur. But these entrepreneurs rarely have large amounts of capital and often also lack business experience. Schumpeter describes "the banker" as the ideal partner of "the entrepreneur" by providing both funds and advice. For astute bankers, the risk of funding a dynamic entrepreneur is moderate because he keeps close and regular contact with the entrepreneur and can threaten to stop funding him if the entrepreneur acts unwisely and does not heed the banker's advice.

These highly plausible views of Bagehot and Schumpter were eclipsed by the neoclassical theory of economic growth developed by Robert Solow (1956) and others. This theory focuses exclusively on capital in the sense of real capital, as discussed above. It is important to note that it does not simply neglect finance in the sense of financial institutions and financial relationships as relevant for growth, but due to its logical structure, it does not even permit incorporating any consideration of financial institutions, markets and contracts.

Other economists were equally sceptical about the role of finance. Joan Robinson (1952) did not see a positive effect of finance on growth arguing that developments in the area of finance are a reflection and not a cause of growth in the real sector of an economy: "where enterprise leads finance follows". In a widely quoted survey on economic growth, Nicholas Stern (1989) did not even mention finance as a potentially relevant factor. In contrast to neoclassical growth theory, the so-called new theory of endogenous growth permits incorporating finance. But its protagonists did not think that finance is sufficiently important to warrant inclusion.

The neglect of finance only ended when the World Bank issued its World Development Report of 1989. This report argued convincingly that "finance matters",[8] and offered first empirical evidence to support this claim. The empirical research started in the course of the preparation of the Word Development Report, and was continued by a group of scholars closely connected to the World Bank. In 1993, King and Levine published their seminal

[8] „Finance matters" may always have been clear to practitioners in the financial world. However, under the strong influence of the neoclassical theory of perfect markets, it was largely discarded in academic circles. This view which became dominant after the publication of the Modigliani-Miller irrelevance propositions around 1960, was only challenged with the advent of the so-called new institutional economics, that puts imperfect markets, incomplete contracts and institutions back into the centre of academic attention.

article about "Finance and Growth" with empirical evidence demonstrating that – to quote from the title of their paper – "Schumpeter Might be Right".

A host of other contributions investigating the finance-growth nexus followed. Some were more theoretically oriented, and others had an empirical focus. In a recent survey of the literature, Levine (2005) listed the questions addressed by the researchers:

- Are finance in the sense of the state of the financial sector and growth related?
- Does finance cause growth, and if it does, through which channels of mechanisms?
- Do the same factors influence growth in a bank-based system as in a capital market-based one?
- And finally, which system is better for fostering the economic progress?

b) The theoretical debate

There is a large number of economic models that discuss the contributions of finance – in the sense of financial intermediaries, markets and contracts – can make to economic growth. Their common starting point is the acknowledgement that external financing is difficult, since it is plagued by serious information and incentive problems. These problems give rise to moral hazard, adverse selection and various forms of agency problems, and might even lead to capital rationing as an endogenous feature of financial systems.[9] The merit of financial intermediaries, notably banks, and financial markets is that they serve to mitigate these problems. Though they do this in different ways, both banks and markets strengthen the incentives to collect and use information before a financial relationship with a firm is established and to monitor the borrowing firms when such a relationship has come into existence. By performing these functions of screening and monitoring both intermediaries and markets reduce the fears that potential providers of external finance might have and that might make them reluctant to lend or invest. Financial institutions facilitate external finance.

There are essentially two effects of finance as a source of growth. One is that the sheer quantity of external financing is increased; thus finance contributes to the accumulation of capital, the main engine of growth according to neoclassical theory. The other one is that, through its screening and monitoring functions, finance improves the efficiency of capital allocation, thus contributing to technical progress as the main engine of economic growth according to the Schumpeterian line of reasoning.

[9] Here the work of Joseph Stiglitz is particularly relevant; see Stiglitz (1985) for a general survey and Stiglitz/Weiss (1981) on capital rationing as an endogenous effect of information and incentive problems that are to be expected in financial markets.

Most theoretical models presented in the literature focus either on banks or financial markets, and they emphasise either the function of fostering capital accumulation or that of promoting innovation and increasing the productivity of the use of capital. Some contributions point out that banks can have some positive effects or perform certain functions very well, while markets are good at performing other functions well. As an example, banks seem to be particularly good at creating and using private information. On the other hand markets seem particularly well suited to aggregating diverse pieces of public information. While banks are able to mitigate what Allen and Gale (1995, 1997, 2000) call intertemporal risk that negatively affects the entire economy, well organised markets are very good at reducing and allocating so called intratemporal risks, that is, risks in a given time period. In some contributions, intermediaries and markets are regarded as performing complementary functions, while in some others the adverse effects of one type of institutions on the performance of the other type is highlighted. The contribution of Allen and Gale may once more serve to illustrate this point. As these authors show, the ability of banks to reduce intertemporal risks is undermined if capital markets are highly developed.

We do not have the space to go into more detail here and refer the readers to the available surveys[10] and the original contributions. In summarising what is discussed there, we want to conclude with three remarks. The first one is that the theoretical literature focuses on finance in a broad sense and not merely on capital, and emphasises those aspects of information, incentives and institutions that characterise finance a special field. The second remark is that, by and large, this literature points out the merits of banks and other intermediaries and thereby creates a counterweight to the emphasis on markets in today's economic mainstream. The third and final remark is that the theoretical literature highlights the importance of the question whether banks or markets – and in a broader sense a bank-based or a capital market-based financial system – can in some meaningful way be called "better", but has not yet come up with a conclusive answer.

c) The empirical debate

The empirical research on the link between financial development and economic growth can be traced back to the pioneering work of Goldsmith (1969). Goldsmith analysed the relationship between the financial structure, that is the financial sector as defined above, and real activity at a time when computers and large scale data bases were not yet available and

[10] Excellent surveys are provided by Allen/Gale (2000 and 2001) and Levine (2005).

econometric techniques were not yet widely known. Using cross-country data Goldsmith found evidence of a positive time trend of the ratio of financial institutions' assets to GDP for a sample of 35 countries over a century (1860-1963). Many authors have later extended and refined this line of inquiry and have basically confirmed Goldsmith's early findings.[11]

The existing empirical literature can be divided into three classes, those using cross sectional analysis, those using a time-series approach, and those employing panel data methods – a combination of both techniques. Each of these approaches has indisputably made useful contributions to the examination of the relationship between finance and growth. However, it must be emphasized that they suffer from some important limitations which do not allow us to take all results at face value. The general problem of all empirical studies is that, to examine the relationship between financial development and growth, one has to define appropriate measures of financial development. Researchers come up with various definitions and measures. Some studies use the size of the banking sector typically measured by the deposit liabilities to GDP or bank claims on the private sector to GDP, others use the size of the stock markets, defined as market capitalization to GDP or total value of domestic equities traded on the stock exchanges to GDP. However, these measures have been criticized by others. One concern is that financial development may be a leading indicator rather a cause of economic growth. It may predict growth as financial markets discount the value of future opportunities and financial intermediaries lend more when they anticipate economic growth, and both financial development and growth can be driven by some omitted factors such as the propensity of households to save. This concern is most important in the case of cross-section studies.

The studies based on cross-country comparisons focus on determining the strength of the partial correlation between financial development and some growth indicators by averaging the variables across countries. The evidence they provide is consistent with the view that more developed financial sectors positively affect long-run economic growth. These studies lend support to both the neoclassical and the Schumpeterian views that growth is caused by capital accumulation and innovation or technical progress. Moreover, they seem to suggest that finance does not follow growth but leads it. Levine and Zervos (1998) go one step further than earlier authors and combine the empirical models with the theoretical approaches in order to conclude that bank and stock market development have independent effects on growth as they provide different financial services.

[11] For surveys of methods and results see World Bank (2001) and Levine (2005).

In one of his studies, Levine (1999) undertakes a first attempt to empirically assess which type of financial system is more favourable for economic growth. Interestingly, he does not find any evidence that the type of the system matters for economic growth. However, his results support the hypothesis advanced by La Porta et al. (1998) that the type of the legal system of a country significantly influences financial sector development and thereby indirectly also causes economic growth. The legal rights of investors as well as the efficiency with which these rights are enforced determine the quality of financial services and hence economic growth rates.

The recognition that even statistically highly significant positive associations between financial development and economic growth are not sufficient to define the direction of causality of the finance-growth nexus was first made by Patrick (1966). Echoing Joan Robinson, Patrick argued that the opposite direction of causation, that is general economic growth leading to financial development, is also possible. This criticism has stimulated the development of the second methodology to study the finance-growth nexus, which uses time-series methods. Time series studies do not implicitly make the simple and questionable assumption that all countries exhibit the same financial structure. Moreover, time-series techniques do not only permit to study the partial correlation between financial development and growth but also to identify dynamic interactions among the variables. This allows a better assessment of the direction and the strength of causation.

The empirical results of time series studies and also those of panel studies are less clear-cut than those of the cross-section studies seem to be. While Rousseau and Watchel (1998) found a strong positive relationship between the level of financial intermediation and growth for five industrialized countries, Thornton (1996) and Demetriades and Hussein (1996) came to the opposite conclusion. Thornton performed Granger causality tests for 22 developing countries and did not find support for the hypothesis that finance leads to growth. Demetriades and Hussein (1996) found that only in four out of the 16 countries they analysed there is a positive effect of financial development on growth. In two other cases finance seems to follow growth, and in seven cases the finance-growth relationship seems to be much more complex. Their result suggests that different levels of economic development may explain the different relationships between finance and growth. In a similar vain, Jalilian and Kirkpatrick (2002) identified a threshold effect. Once a certain level of economic development has been reached, further financial development does not seem to have a growth-enhancing role. Hence, finance may have a positive growth impact only in developing countries. Even more interestingly,

Rioja and Valev (2004) found that banking sector development affects economic growth through different factors in developing countries than in developed countries. Financial development has a greater effect on growth based on enhanced capital accumulation in developing countries, while the impact on innovation seems to be stronger in industrialised countries.

Another set of studies looks at industry and firm-level data to see if there is any positive effect of finance on growth and, if yes, if banks or markets have stronger growth effects. For instance, a study by Demirgüc-Kunt and Maksimovic (2000) finds that the rate of firms that receive external financing is positively related to the development of both capital markets and banks. But these authors also cannot find evidence that the organization of financial systems affects firms' ability to obtain external financing and hence their growth.

d) Conclusions and open issues

The sheer quantity of the empirical evidence that is available by now suggests that there is a positive relationship between financial development and growth, even though this relationship is not mechanical and uniform and depends on a variety of factors, whereas bank-based and capital market-based financial systems may both be about equally good. These two general findings are not all that surprising, and they seem to corroborate the results of the relevant theoretical studies. However, one should not overestimate the closeness of the correspondence between theoretical and empirical results. The need to use available data forces the empiricists to employ simple measures for financial development as explanatory variables and for growth as the dependent variable. These measures are much less subtle than those to which the theorists refer in their models. In fact, what Levine and his colleagues have shown so far is only that there is a positive relationship between different measures of financial sector size and GDP growth, but not between financial sector quality and development in a broader sense of the word. Based on what we discussed in the last section, we regard it as an interesting challenge for future empirical research to determine whether the growth impact of a financial system depends on its quality measured by some standard of its internal consistency.

2. Finance and development

As long as one looks mainly or even exclusively at industrialised countries' financial systems, the focus on GDP growth that characterises most of the relevant literature is appropriate. But when one looks at the so-called developing countries, as we do in this section, it is definitely

too narrow. Development is more than growth. It is also concerned with the distribution of wealth, income and economic opportunities. Moreover, development also has to do with the structure of societies and political systems. Correspondingly, development policy aims at achieving a more equitable distribution of income and opportunities and creating open and stable economic, social and political systems. As we argue in this section, the financial system and its quality are a crucial determinant of development in this broad sense.

How are finance and development related? The first link is that the financial sectors of most developing countries are underdeveloped. Lack of financial development reflects general underdevelopment and is both a consequence and a cause of general underdevelopment. A low level of financial development shows up in a lack of financial institutions, in inefficiency and instability of those institutions that exist and in a financial sector that does not provide services to a large part of the economically active population. In many developing countries not only the really poor but also middle class business people do not get bank loans.

In view of the considerable benefits that a country may be able to gain from having a good financial infrastructure one may wonder why many financial systems are so underdeveloped. This has three reasons. One is a misguided policy of "financial repression" that has its roots in the false notion that finance is not important and that has seriously restrained the emergence of banks and financial markets. The second reason was that those who held power used and "abused" the financial sector for their own enrichment.[12] The third reason was, and still is, that it is simply very difficult to create a healthy financial sector in inhospitable environments. Finance has to overcome pervasive information and incentive problems that are even stronger in developing countries than in advanced countries with well functioning legal systems.

There is also a close connection between financial systems and development policy. For many years, development finance consisted in simply channelling capital from developed to developing countries. For a long time after World War II, this policy consisted in transferring large volumes of capital to fund governments and big infrastructure and industrial projects. Then, after 1973, policies changed. The transfer of capital was redirected to specific target groups of poor people that policy makers in the donor countries considered as needy and worthy of external support. These target group-oriented capital transfers deliberately avoided using the formal financial sector as a conduit because development experts were convinced that existing commercial and development banks were neither willing nor able to reach poor

[12] The critique of these policy approaches is summarised in two interesting volumes edited by Von Pischke et al. (1983) and Adams et al. (1984).

target groups. Under the old conditions of "financial repression" this assessment was clearly justified.

However, development policy did not always treat finance as synonymous with capital. A third phase of development finance policy took a completely different perspective and "detected" that finance can also be understood in the sense of financial institutions and markets. It whole-heartedly subscribed to the new learning of Shaw (1973) and McKinnon (1973) that instead of financial repression, liberalisation and deregulation of the financial sector were called for. Some experts expected that banks that were set free to pursue their own financial interests would soon start to extend loans to the formerly neglected clients and that they would do this wisely. However, this expectation was frustrated. Instead of opening up to a new clientele, many financial institutions took on too much risk and entire financial sectors became highly instable and collapsed under the burden of bad loans (Diaz-Alejandro, 1995). What the ultra-libertarian policy makers had overlooked was exactly what Stiglitz (1988) had taught for years: finance is shaped by serious information and incentive problems, and therefore financial systems must be regulated and guided by policies that limit risk-taking.

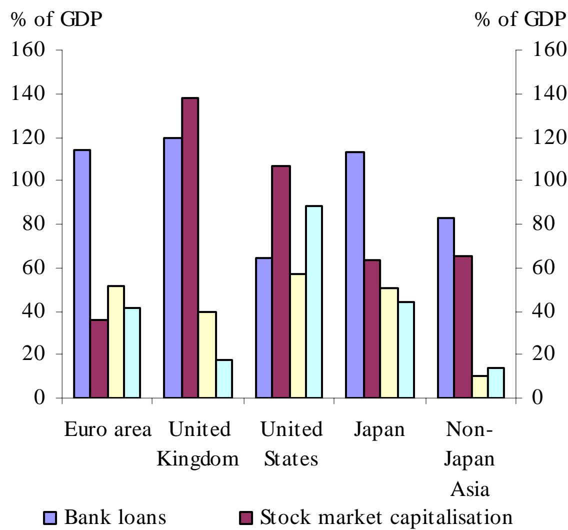
This negative experience finally paved the way for a new policy approach that aims at strengthening financial systems by building up financial institutions that are at the same time financially viable and socially relevant. Recent experience suggests that this latest development policy approach, which considers finance in a broad sense and focuses on financial systems, on institution building and incentive design may finally be successful.[13]

IV. Differences between National Financial Systems

We start this section with a brief look at some financial statistics. Figure 1, which is taken from a recent article by Allen et al. (2004), shows very clearly that even in the recent past, there are considerable differences between the weights that bank loans and publicly traded shares and bonds – that is banks and markets – have in different national financial systems.

[13] An early advocate of the new direction of development finance policy is Von Pischke (1993); see also Armandáriz de Aghion/Morduch (2005) and Schmidt/Von Pischke (2005) for more recent contributions.

(a) 1996



(b) 2004

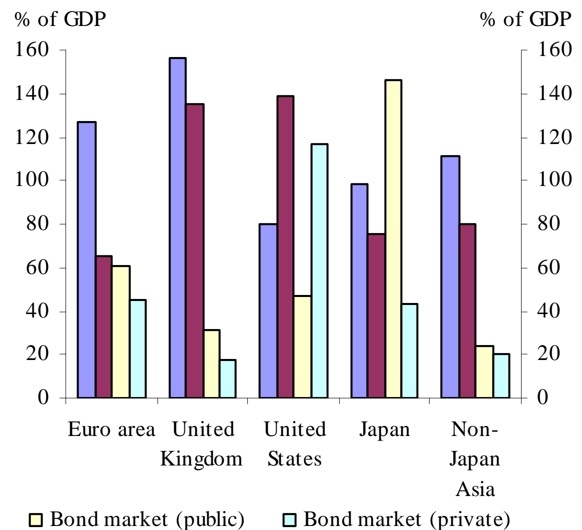


Figure 1: Size of Financial Systems Components by Countries and Regions

The differences may appear even more pronounced when one looks at the role of banks as measured by intermediation ratios (Schmidt et al., 1999) and at the financing patterns of non-financial firms (Hackethal/Schmidt, 2004). The surprising findings of these studies is that even though all financial systems are affected by some common factors which tend to reduce the role of banks, the differences have remained as pronounced as they have been for a long time in absolute terms and even increased in relative terms. For instance, the ratio of intermediation of firms vis-à-vis banks, that is, the share of external financing of non-financial firms that comes from banks in the forms of equity and loans, in the US and UK is only about one third of that for Germany and Japan, even though in both groups of countries this intermediation ratios has fallen between the mid-sixties and the end of the last century.

As we argued above, it may not be enough to look at individual elements of a financial system if one wants to understand its internal logic and also its development. We therefore supplement the statistical information by a short look at individual financial systems with a view to the question if these systems have changed their structure in the recent past or are about to change.

The example of the American financial system has already been used above to illustrate the concepts of complementarity and consistency. America has had a capital market-based system for many years. As Mark Roe (1994) has argued, the origins of this system are mainly political in nature. Like all financial systems, that of the US is shaped by complementarity,

and by and large it is also consistent. The respective roles of banks and capital markets are in line with the dominant way in which firms finance their investment needs and with the prevailing bank-client relationship, with the way in which households save and accumulate wealth, with the corporate governance system and with pension finance, just to mention the most important elements of a financial system. Bank lending for business purposes is limited in quantitative terms and in terms of maturity, forcing firms to use the securities markets for financing and at the same time reflecting this choice of financing sources. Bank-client relations are not close but "at arm's length" and banks rarely play a positive role if a borrowing firm gets into trouble. In view of the limited role of bank lending and of the American bankruptcy law, this is not surprising. Banks also do not own shares and are not actively involved in the governance of companies to which they lend. But of course, why should they incur the risks and costs which would be related with a different policy? Households use pension funds and other non-bank financial intermediaries for their savings, and these institutions invest the major part of the funds they manage in the stock market thus providing the funding which firms require. The stock market is not only important for firm financing and (indirect) household savings in the U.S., but at least in principle it is also a key element of the corporate governance regime: the threat of a hostile takeover keeps managers tied to shareholders interests.

This is in a nutshell how one could have described the American financial system some time ago (e.g. Kaufman, 1997), and by and large the description is still valid today. Interestingly, the relative importance of banks has further decreased in recent years while that of the stock market has increased. The British financial system resembles the American system in its basic structure despite a number of differences. In both countries those features of their financial systems that make the systems capital market-oriented have become more pronounced over time. The systems were largely consistent in the past, and they have remained consistent until today. Of course, since they are capital market-based systems one would not expect them to change in a fundamental way.

As mentioned above the financial systems of Germany and Japan have for many years been bank-dominated. Banks were the main players in the financial sector and the entire financial system, providing the majority of the external financing of firms and collecting a considerable part of the financial savings generated by households and exerting a strong influence on other financial sector institutions. Due to the high level of long-term bank financing, banks had reasons to establish close relationships with firms and to become actively involved in the

governance of large corporations. This enabled them to better monitor their borrowers and thereby to limit their credit risk.

Given the strong role that banks played in the German financial system in a not so distant past, it is not surprising that Germany's organised capital markets have long been neglected and are still today almost irrelevant as a source of enterprise financing and completely irrelevant as a force in corporate governance, although in terms of absolute capitalisation the German and Japanese stock markets are amongst the biggest in the world. Households in continental Europe and Japan own significantly fewer financial assets than those in UK and US. Their financial portfolios are dominated by relatively safe assets. As a consequence, the German and Japanese households bear significantly less financial risk than those in Anglo-Saxon countries.

Traditional national systems of corporate governance in Germany and Japan complement the picture. By law and tradition, corporate governance used to be stakeholder-oriented and insider-controlled. Banks and employees were important actors in corporate governance, alongside shareholders which in the case of Germany would typically hold considerable blocks of shares. These groups were the dominant forces in the supervisory boards in Germany and corresponding for in Japan. Together with top managers, they constituted what one might call a "grand coalition" that determined corporate policy. And in fact, large firms were for a long time managed in the "common interest" of those represented in this "grand coalition": stability and growth – or rather stable growth – and not shareholder value were the maxims followed by most large firms.

For many years, the various elements of the financial systems of Germany and Japan were not only complementary but also consistent. For instance, the dominant way of financing was well adjusted to the corporate governance regimes, to the respective roles of banks and capital markets in the two financial sectors, to the prevailing pension systems, etc – and vice-versa. We do not want to explain the causes and consequences of consistency in more detail here, but refer the readers to the relevant literature[14]. For a long time, the two financial systems seem to have been very valuable for the respective economies (Porter, 1992). However, this may no longer be the case now as it used to be, as we will discuss in the concluding section.

[14] Two recent major publications about the German and the Japanese financial systems, namely Krahnen/Schmidt (2004) and Hoshi/Kashiap (2001), are surprisingly similar in that they both attach great importance to the aspects of complementarity and consistency in analysing the two systems.

The French financial system is another interesting example of how financial systems used to function and how they have changed recently. Until the middle of the 1980s, the French financial sector and in fact the entire French financial system was shaped by government influence in a fundamental way such that the system could well be considered to constitute a financial system type of its own. Though again under active guidance and leadership of the government, this system was dismantled after 1985. Disregarding this specific and characteristic former state influence, one could also describe the former French financial system as a strongly bank-dominated (Faugère/Voisin 1994). However, after the transformation of the last two decades, this characterisation is no longer appropriate. Now this system is almost as clearly-capital market-dominated as those of the U.S. and the U.K. (Plihon et al., 2006). We will take up the importance of cases like the French one in the following and concluding section in which we look at the important questions of how financial systems develop and if we can expect a general convergence of financial systems in Europe and possibly even world-wide.

IV. The Development of Financial Systems

1. How financial systems develop

The statistical data and the descriptions of national financial systems presented in the last section show two trends that seem rather contradictory. One is that in almost all financial systems the values taken on by those financial sector indicators that represent the role of capital markets increase over time. This suggests a tendency of a general convergence towards the Anglo-Saxon model of a capital market-based financial system, although this is no conclusive evidence since systems are more than collections of individual elements. The other trend is that in many countries the characteristics remain largely intact. As the descriptions show, the German financial system still seems to be bank-dominated, and the Anglo-Saxon countries USA and UK still have capital market-dominated financial systems. This would argue against general convergence at least so far and at least as a convergence towards some “intermediate” type of financial system might be concerned.

The contradictory trends of change on the one hand and stability on the other suggest looking in detail into the “laws” that govern the development of entire financial systems and not

merely at isolated indicators. There are many views on how financial systems develop over time. But for space reasons we restrict ourselves to discussing only three of them.[15]

One view is that of a „natural progression“ from bank-based to capital market-based systems. This is the most widely held view, shared by most practitioners and politicians as well as by many scholars. This view may simply be based on observations of time series data like those compiled by Goldsmith (1969), or it may be based on the belief that a capital market-based system is simply better than a bank-based system. If applicable, this "efficiency-pull" argument would provide strong support for this view. The international experience of the last fifteen years makes this position plausible since it seems to demonstrate the economic superiority of the capital market-based systems of the U.S. and the U.K, which may in turn explain the trend towards more market orientation showing up in the data. However, if one looks at the debate of only fifteen years ago, one finds the opposite assessment expressed by influential authors such as Michael C. Porter (1992). Moreover, as we argued above, recent empirical work as well as theoretical models such as those presented by Allen/Gale (2000) and in a large number of papers by Stiglitz do not support the underlying conviction that capital market-based financial systems are in some well-defined sense better than bank-based systems; and if there is not the assumed "efficiency pull" of the allegedly superior system, the idea of a "natural progression" loses much of its appeal.

The second view is based on the assumption that the dichotomy of bank-based and capital market-based financial systems is not generally valid and may already have lost its relevance. It may only represent a specific historical situation in which it was impossible to combine the strength of intermediaries and markets. Financial innovation may change this situation soon and generate new options including some which permit combining the strengths of a bank based-system with those of a capital market based system. Seen from the situation of today, what might soon emerge would be "hybrid systems". A very instructive example of how the strengths of both systems can be combined successfully is securitization (Franke/Krahnen, 2005). The World Bank (2001) also argues that a synthesis of two financial systems – or a

[15] Other views can only be mentioned briefly. One of them is that of LaPorta, Lopez-de-Silanes, Shleifer and Vishny. In a set of papers (e.g. 1998) that have attracted great attention in the academic community, these authors have argued that the character of a country's financial system is strongly determined by the country's legal tradition (see also Glaeser/Shleifer, 2002). The problem with this proposition is that if one took it literally it would suggest that financial systems cannot change their character at all, since a country's legal tradition is simply given. In opposition to this view, Rajan and Zingales (2003) have recently argued that instead of long-term stability there are at times "great reversals", meaning that many national financial systems have undergone fundamental changes – both from having bank-based to having capital market-based financial systems and in the opposite direction. None of these two views seems too convincing to us, but as will become clear later we would rather accept the "great reversals" view than the other one.

"hybrid system" – is a perspective that is attractive and possibly also empirically relevant because it strengthens both efficient capital allocation in a short term perspective and competition as a determinant of long-term welfare. However, so far there are only very few convincing examples that might suggest that a synthesis can be viable and economically attractive. Moreover, the generalisation of an argument that refers to one single financial instrument such as securitisation to the case of financial systems in general has so far not been shown to be possible.[16]

The third view builds on the concepts of complementarity and consistency presented in section II.4 above, where we argued that financial systems are shaped by complementarity and that the consistency of a financial system is extremely important for its economic effects. Inconsistencies cause welfare losses, and if complementarity is indeed important, these losses can be substantial. Let us assume, for the sake of illustration, that welfare or efficiency differences between different financial systems can be quantified and assessed by an outside observer. Based on what was discussed in section III, such an observer might be inclined to think that consistent bank based and consistent capital market-based financial systems are largely equal in welfare terms: Perhaps there is no difference at all, or the difference is small. However, if complementarity is an important determinant of how well any financial system functions, the welfare difference between consistent and clearly inconsistent financial systems will be considerable.

2. Why complementarity may prevent or foster convergence

What does this imply for the possibility and the likelihood of a convergence? Under the assumptions which we have made and which we find plausible, starting from any situation that is characterised by *inconsistencies* that may have arisen from mixing incompatible elements or features of bank-based and capital market-based financial systems, the possible welfare gain that could be achieved by re-establishing consistency – if this were possible – within any of the two types of financial system would be substantial. In such a situation wise policy makers would most probably aspire to re-establish consistency fast and with a fair chance of reaching this goal. In principle, the outcome of this process is undetermined, depending very much on which immediate gains in efficiency seem achievable in the specific situation. But in practice it is often easier to "mend" the financial system a country is used to than adopting a fundamentally different one.

[16] Moreover, there are theoretical arguments that speak against the possibility of having a „hybrid model", see e.g. Boot/Thakor (2000).

If a possible transformation process started from a situation that is characterised by *consistency* of the financial system, complementarity could prevent efficiency-induced convergence. This has two reasons. One is that no one knows which system type is really better; policy makers might understand this and refrain from even attempting to implement a different system type than the one that prevails in their country. The other reason is that the transition from one consistent system to the other one would cause severe, though temporary, welfare losses, which wise policy makers would want to avoid.

Of course, all of this does not preclude that financial systems change in a fundamental way, which would amount to switching from a bank-based to a capital market-based system or vice-versa.[17] In a number of countries we currently observe the switch or transition from banks to capital markets as the central and defining element of the financial system. In the past, there were several cases in which a similarly profound change occurred in the opposite direction. The changes may have political reasons and may be caused by a crisis, as it was certainly the case after the great depression of 1930 and the Second World War when many countries adopted bank-dominated financial systems with strong political means such as the nationalisation of banks (France), the closing of markets (Japan and Germany) or the introduction of very restrictive banking laws (USA). Prevailing economic doctrines supported these moves of the past as they currently support the move from banks to markets.

The most important condition under which a fundamental change of the financial system can occur is that gross inconsistencies exist, that they have serious negative consequences and that these consequences are also felt by the general public. In the recent past, the French financial system provided a telling example. The former state dominance of the French financial system had become unsustainable in the 1980s. This situation made the government initiate a fundamental switch towards a capital market-oriented financial system. As the theory of complementarity suggest, the transition was very difficult and lead to more than a decade of turmoil and crisis in the French financial system. But by now this phase is over, and the French system is in a much better shape than it has been for many years.

However, there are limits to which switches are possible. In a recent paper Hackethal et al. (2006) argue that at present no country can opt for introducing a bank-based financial system if it did not have one before. The reason is that, due to globalisation, the economic pressure on any country to have a good financial system is strong, that a bank based system can only

[17] In other words and using the term coined by Rajan and Zingales (2003), there can be “great reversals”.

function well if it operates on the basis of trust among economic agents and a tradition of concluding and honouring implicit contracts. These prerequisites cannot be imposed by government fiat, and if they have once existed and have disappeared, they cannot easily be restored. For the specific case of Germany, Hackethal et al. (2006) argue that it might even be impossible to restore the old bank-based system even though it existed before and used to function well. This proposition is valid even though a bank-based financial system might in principle be as good as or even better than a capital market based system.[18] Given that its financial system is currently plagued by serious inconsistencies, Germany might be forced to follow the French example and to also switch to a capital market-based system, since it may not be possible to restore the social, political and economic foundations on which the old system rested.

A similar situation may obtain in Japan, which also used to have a well functioning bank-based system for 50 years. The suffering of the Japanese financial system was long and had serious negative consequences for the economy. Whether Japan emerges from this crisis period with a restored bank-based system or with a capital market-based system remains to be seen (Hoshi/Kashiap, 2001). The situation of several countries in the South of Europe, especially Italy and Spain, may be similar.[19] And there is an additional factor that applies in all EU countries. Financial sector policy is now made in Brussels and no longer in the individual countries. EU financial sector policy is shaped by two tendencies at the same time. On the one side, it favours the general adoption of the Anglo-Saxon model; and on the other side EU policy seems to aspire a mix of what the EU Commission considers to be the best elements of the different national systems. The theory of complementarity suggests that the latter policy cannot work. It would lead to inconsistencies. Since inconsistent systems are not efficient and may become unsustainable, this policy of a “middle of the road” approach is ultimately an additional indirect way of imposing the Anglo-Saxon financial system. Therefore, we might end up with the same type of financial system in all of Europe and thus a convergence of the financial systems in the entire Western world to occur relatively soon.

[18] Note that this is hypothetical assumption. It does not mean that the authors claim that is indeed better.
[19] For a discussion of the possible development path of the different national financial systems in Europe see Gaspar et al. (2003).

References:

Adams, D.W., D. H. Graham and J.D. von Pischke (1984), *Undermining Rural Development with Cheap Credit*, Boulder, Col: Westview Press

Allen, F, F. Chui and A. Maddaloni, (2004), Financial Systems in Europe, the USA and Asia, *Oxford Review of Economic Policy*, Vol. 20 (4), pp. 490-508

Allen, F., and D. Gale (1995), A Welfare Comparison of Intermediaries and Financial Markets in Germany and the US, *European Economic Review*, pp. 179-209

Allen, F., and D. Gale (1997), Financial Markets, Intermediaries, and Intertemporal Smoothing, *Journal of Political Economy*, pp. 523-546

Allen, F., and D. Gale (2000), *Comparing Financial Systems*, Cambridge, MA: MIT Press

Allen, F., and D. Gale (2001), Comparative Financial Systems: A Survey, Working Paper, Wharton School

Aoki, M. (2001), *Towards a Comparative Institutional Analysis*, Cambridge, MA: MIT Press

Armandáriz de Aghion, B., and J. Morduch (2005), *The Economics of Microfinance*, Cambridge, MA: MIT Press

Boot, A., and A.V. Thakor (2000), Can Relationship Banking Survive Competition?, *Journal of Finance*, Vol. 55, pp. 679-713

Demetriades, P., and K. Hussein (1996), Does Financial Development Cause Economic Growth? Time Series Evidence from 16 Countries, *Journal of Development Economics*, Vol. 51, pp. 387-411

Demirgüc-Kunt, A., and V. Maksimovic (2000), Funding Growth in Bank-Based and Market-Based Financial Systems: Evidence from Firm-Level Data, World Bank Policy Research Working Paper No. 2432

Diaz-Alejandro, C. (1985), Good-Bye Financial Repression, Hello Financial Crash, *Journal of Development Economics*, pp. 1-24.

Gaspar, V., P. Hartmann. and O. Slejpen (2003), Intoduction, in *The Transformation of the European Financial System*, Frankfurt: European Central Bank

Goldsmith, R.W. (1969), *Financial Structure and Development*, New Haven, CT: Yale University Press

Gurley, J., and E. Shaw (1960), *Money in a Theory of Finance*, Washington, D.C.: Brooking Institution

Glaeser, E. L., and A. Shleifer (2002), Legal Origins, *Quarterly Journal of Economics*, Vol. 117, pp. 1193-1229

Franke, G. and J.P Krahnen (2005), Default Risk Sharing Between Banks and Markets: The Contribution of Collateralized Debt Obligations, NBER Working Paper 11741

Hackethal, A. (2000), *Banken, Unternehmensfinanzierung und Finanzsysteme*, Frankfurt: Peter Lang

Hackethal, A., and R.H. Schmidt (2000), Komplementarität und Finanzsysteme, *Kredit und Kapital. Supplement 15*, pp. 53-102.

Hackethal, A., and R.H. Schmidt (2004), Financing Patterns: Measurement Concepts and Empirical Results, Working Paper Series: Finance and Accounting, Goethe-University Frankfurt/Main Nr. 125

Hackethal, A., R.H. Schmidt and M. Tyrell (2005), On the Way to a Capital Market Based System, *Corporate Governance: An International Review*, Vol. 13, pp. 397-407

Hackethal, A., R.H. Schmidt and M. Tyrell (2006), The Transformation of German Financial System, *Revue d´économie politique*, Vol. 117, pp. 431-456

Jalilian, H., and C. Kirkpatrick (2002), Financial Development and Poverty Reduction in Developing Countries, *International Journal of Finance and Economics*, Vol. 7, pp. 98-108

Hoshi, T. (1998), Japanese Corporate Governance as a System, in Klaus J. Hopt et al, eds., *Comparative Corporate Governance: The State of the Art and Emerging Research*, Oxford: Oxford University Press, pp. 847-875

Hoshi, T., and A. Kashyap (2001), Corporate Financing and Governance in Japan: The Road to the Future, Cambridge, MA: MIT Press

Kaufman, G. (1997), The U.S. Financial System, 6th ed., Englewood Cliffs, NJ: Prentice-Hall

King, R.G., and R. Levine (1993), Finance and Growth: Schumpeter Might be Right, *Quarterly Journal of Economics*, Vol. 108, pp.717-738

Krahnen, J.P., and R.H. Schmidt, eds. (2004), *The German Financial System*, Oxford: Oxford University Press

La Porta, R., F. Lopez-de-Silanes, A. Shleifer R. W. Vishny (1998), Law and Finance, *Journal of Political Economy*, Vol. 106, pp. 1113-1155

Levine, R. (1999), Law, Finance, and Economic Growth, *Journal of Financial Intermediation*, Vol. 8(1/2), pp. 36-67

Levine, R. (2005), Finance and Growth: Theory and Evidence, in: Philippe Aghion and Stefan Durlauf, eds, *Handbook of Economic Growth*, Amsterdam

Levine, R., and S. Zevros (1998), Stock Markets, Banks, and Economic Growth, *American Economic Review*, Vol. 88, pp. 537-558

McKinnon, R. (1973), *Money and Capital in Economic Development*, Washington, DC: The Brooking Institution

Merton, R.C., and Z. Bodie (1995), A Conceptual Framework for Analyzing the Financial Environment, in D. B. Crane et. al. (eds), *The Global Financial System: A Functional Perspective*. Boston, MA: Harvard Business School Press, pp. 3-32

Milgrom, P., and J. Roberts (1990), The Economics of Modern Manufacturing: Technology, Strategy and Organization, *American Economic Review*, Vol. 80, pp. 511-528

Patrick, H. (1966), Financial Development and Economic Growth in Underdeveloped Countries, *Economic Development Cultural Change*, Vol. 14, pp.174-189

Plihon, D., J. Couppey-Soubeyran and D. Saidane (2006), Les banques: acteurs de la globalisation financière, Paris: La Documentation Francaise

Porter, M. (1992), Capital Disadvantage: America's Failing Capital Investment System, *Harvard Business Review*, Vol. 70, (Sept.-Oct.)

Porter, M. (1996), What is Strategy? *Harvard Business Review*, Vol. 74, (Nov.-Dec.), pp. 61-78

Rajan, R.G., and L. Zingales (2003), The Great Reversals: The Politics of Financial Development in the 20th Century, *Journal of Financial Economics*, Vol. 69, pp. 5-50

Rioja, F., and N. Valev (2004), Finance and the Sources of Growth at Various Stages of Economic Development, *Economic Inquiry*, Vol. 42, pp. 27-40

Robinson, J. (1952), The Generalization of the General Theory, in: The Rate of Interest and Other Essays, London: McMillan

Roe, M.V. (1994), *Weak Owners, Strong Managers: The Political Roots of American Finance*, Princeton University Press, Princeton N.J.

Rousseau, P. L., and P. Watchel (1998), Financial Intermediation and Economic Performance: Historical Evidence from Five Industrial Countries, *Journal of Money, Credit and Banking*, Vol. 30, pp.657-678

Schmidt, R.H. (2004), Corporate Governance in Germany: An Economic Perspective**,** in: Krahnen and Schmidt (eds.), *The German Financial System*, pp. 387-424.

Schmidt, R.H., A. Hackethal and M. Tyrell (1999), Disintermediation and the Role of Banks in Europe: An International Comparison, *Journal of Financial Intermediation*, 8, pp. 36-97

Schmidt, R. H., and M. Tyrell, (2003), What Constitutes a Financial System in General and the German Financial System in Particular? in Krahnen and Schmidt (eds.), *The German Financial System*, pp. 19-67

Schmidt, R.H., and J. D. Von Pischke (2005), Networks of Micro and Small Enterprise Banks, *Small Enterprise Development*, Vol. 16, pp. 30-41.

Schumpeter, J. A. (1912/1934), *The Theory of Economic Development*, Cambridge, MA: Harvard University Press, (first German edition 1912)

Shaw, E. (1973), *Financial Deepening in Economic Development*, New York: Oxford University Press

Solow, R. (1956), A Contribution to the Theory of Economic Growth, *Quarterly Journal of Economics*, pp.65-94

Stern, N. (1989), The Economics of Development: A Survey, *Economic Journal,* pp. 597-685.

Stiglitz, J.E. (1985), Credit Markets and Control of Capital, *Journal of Money, Credit and Banking*, Vol. 17, pp. 133-152

Stiglitz, J.E. (1988), Economic Organization, Information, and Development, in H. Chenery, and N.T. Srinivasan, eds., *Handbook of Development Economics*, Amsterdam et al., pp.93-160

Stiglitz, J.E., and A. Weiss (1981), Credit Rationing in Markets with Imperfect Information, *American Economic Review*, Vol. 71, pp. 393-410

Thornton, J. (1996), Financial Deepening and Economic Growth in Developing Economies, *Applied Economics Letters*, 3, pp. 243-46

Von Pischke, J.D. (1993), *Finance at the Frontier*, Washington D.C.

Von Pischke, J.D., Adams, D. and G. Donald (eds, 1983), *Rural Financial Markets in Developing Countries: Their Use and Abuse*, Baltimore: John Hopkins University Press

World Bank (1989), *Finance and Development: World Development Report*, World Bank, Washington, D.C.

World Bank (2001), *Finance for Growth: Policy Choices in a Volatile World*, Oxford: Oxford University Press

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