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Working Paper

Financial liberalization, financial development and productivity growth: An overview

Economics Discussion Papers, No. 2013-46

Provided in Cooperation with:

Kiel Institute for the World Economy – Leibniz Center for Research on Global Economic Challenges

Suggested Citation: Gehring, Agnieszka (2013) : Financial liberalization, financial development and productivity growth: An overview, Economics Discussion Papers, No. 2013-46, Kiel Institute for the World Economy (IfW), Kiel

This Version is available at:

<https://hdl.handle.net/10419/81539>

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Discussion Paper

No. 2013-46 | August 27, 2013 | <http://www.economics-ejournal.org/economics/discussionpapers/2013-46>

Financial Liberalization, Financial Development and Productivity Growth – An Overview

Agnieszka Gehringer

Abstract

The paper surveys the literature on the effects of finance on productivity growth. In both the theoretical and empirical literature, there is no consensus regarding the contribution of financial liberalization and financial development to growth. Focusing on the direct channels of growth, the author has found both positive and negative contribution of finance to growth. Clearer positive effects emerge when considering growth channels related to productivity dynamics, with the estimated effects being positive and statistically distinguishable from zero.

JEL F32 F33 F36

Keywords Financial liberalization; financial development; productivity; growth; review

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Citation Agnieszka Gehringer (2013). Financial Liberalization, Financial Development and Productivity Growth – An Overview. Economics Discussion Papers, No 2013-46, Kiel Institute for the World Economy. <http://www.economics-ejournal.org/economics/discussionpapers/2013-46>

1. Introduction

The effects of the process of global *financial liberalization* on growth have been extensively analysed in the past literature. In parallel, another related strand of the literature elaborated a context of analysis concerning the impact of *financial development* on growth. Since recently, in both research directions, an increasing effort has been made to quantify the more precise channels, through which growth impulses from finance could be generated. More precisely, two main indirect channels of growth, namely, productivity growth and capital accumulation have been extensively investigated.

In a rather standard and well-established context of analysis, economic literature suggests that cross-country capital flows as well as the progressive development of domestic financial activities contributes to better availability of savings for investment purposes (McKinnon, 1973; Shaw, 1973) and, consequently also more efficient allocation of scarce economic resources (Bencivenga and Smith, 1991; De Gregorio and Guidotti, 1995; Goldsmith, 1969; Greenwood and Jovanovic, 1990). Moreover, intensified and more advanced financial market transactions permit for better, more efficient risk diversification between alternative uses. All this should lead to enhanced economic opportunities and faster output growth. The illustrated argumentation often constituted the background for politically-driven interventions to promote financial liberalization worldwide, both involving industrialized and less developed countries.

This view has been strongly contested in the economic discussion for overseeing some relevant reasons pointing in the opposite direction (Demirgüç-Kunt and Detragiache, 1998; Hellman *et al.*, 2000; Kaminsky and Schmukler, 2001a and b, 2002; McKinnon and Pill, 1997; Schmukler, 2003; Stiglitz 1994, 2000). More precisely, for Demirgüç-Kunt and Detragiache (1998), even a regularly proceeding financial liberalization may result in increasing interest rates. For Stiglitz (2000), if financial integration proceeds too fast, the propensity of crisis events is higher. Additionally, financial liberalization may turn to be excessively selective, leaving smaller businesses, or - on the macro perspective - small economies without sufficient access to finance.¹ The concentration of capital flows towards a small number of recipient countries during the episodes of financial openness is well-recognized historical evidence. In a number of studies, authors report country-specific evidence of financial flows disproportionally flooding only some selected economies of Latin America and Asia (Fernandez-Arias and Montiel, 1996; World Bank, 2001; Basu and Srinivasan, 2002).

Regarding the financial development literature, there are authors that see its relationship to growth as “badly over-stressed” (Lucas, 1988, p. 6) or just are silent about the possible growth contribution of financial system (Chandavarkar, 1992; Meier and Seers, 1984; Stern, 1989). In an

¹ The shortages of financial resources in times they would be needed much constitute a particular concern for developing countries being highly dependent from natural resources. Indeed, these economies might face pro-cyclical availability of financing, implying that they would enjoy the access to finance only in good times, whereas they would be subject to credit constraints in bad times. This pro-cyclicality may provoke unsustainable overheating in the good times, with the consequent risk and the need of considerable adjustment to the subsequent huge downturn, once an adverse shock arrives.

analysis regarding developing economies, Arestis and Demetriades (1999) argue that the main cause of discrepancy between the financial liberalization theory and evidence has to do with the unrealistic assumption of perfect information and perfect competition. Much more realistic is to assume that both adverse selection and moral hazard problems distort the optimal functioning of the financial markets (Stiglitz and Weiss, 1981). This might have led, especially in developing economies, to application of financial liberalization (and development) programmes that generated more problems than they were supposed to solve (Arestis and Demetriades, 1999).

Recognizing both the positive and the negative aspects of the process involving both financial development and global liberalization of financial transactions, some advocated the need to carefully manage the sequential financial events, in the way to minimize the potential risks.

The inconclusiveness at the conceptual ground is substantially mirrored in the empirical evidence that suggests not a unique outcome, but a set of results reporting again both positive and negative effects of finance on growth. When looking more precisely on the results, it seems that the direction and the strength of the influence is partly depending on the precise spatial and time dimension of investigation, on the measurement methods related to the indicators of financial liberalization and of financial development as well as on the econometric strategy followed (Baumann *et al.*, 2013; Gehringer, 2013a).² Moreover, the entire framework of analysis seems to be influenced by the two-way relationship between finance and growth (Calderon and Liu, 2003).

This paper surveys both theoretical and empirical literature on the indirect growth effects of finance. Given the interconnectedness between the two aforementioned strands of the literature, the first part is dedicated to setting the link between financial liberalization and financial development. Subsequently, in Section 3 I touch the somehow controversial issue of measurement of the two phenomena. Section 4 is then dedicated to a review of the often contrasting theoretical arguments on the link between finance and productivity growth. This inconclusiveness is two-fold, according to the aforementioned arguments: first, both regarding financial liberalization and financial development authors identified positive and negative forces influencing the overall economic progress; second, there is a possible two-way relationship between finance and (productivity) growth, with obvious endogeneity implications on the empirical strategies. With this sound conceptual background, in Section 5 I review the empirical studies so as to put together the results obtained in the past efforts aimed to clarify the uneven relationship between finance and growth. Finally, section 6 offers a constructive agenda for the future research.

The present effort is complementary to the previous contributions reviewing the link finance-growth. Regarding financial liberalization and growth, Edison *et al.* (2004) and before them Andersen and Tarp (2003) as well as Gibson and Tsakalotos (1994) offered a comprehensive survey of the

² In a recent meta-analysis, Baumann *et al.* (2013) find that studies using data on the 1980s discover on average stronger (more significant) relationship between financial liberalization and growth than those referring to the preceding decade. This result seems to go hand in hand with a more intensive development of global financial liberalization in the 1980s.

literature on the effects of capital account liberalization on economic growth. Referring to the link between financial development and growth, Pagano (1993) and Levine (1997) review the theoretical and empirical efforts made on the subject. However, no contribution went into details concerning the productivity impact of finance. This constitutes the main motivation of the present survey that is the first one focusing on both financial liberalization and development and their influence on indirect, as opposed to direct growth channels.

2. Financial liberalization versus financial development

In the prevailing part of the past discussion, financial liberalization and financial development and their relation to direct and indirect economic growth were treated separately.³ This is clearly conceivable under the recognition of the distinct nature assigned to the two concepts. While financial globalization refers to the process of the progressive removal of barriers in the international movement of capital flows, financial development refers to the upgrading of the quality of financial transactions. Accordingly, the former pertains basically to the supra-national dimension, in which financial system refers to the intensification of transactions between the national economy and the rest of the world. The latter, instead, is more tightly embedded in the national context, with the financial depth observed within the borders of a single economy.

This notwithstanding, in the respective investigations, it has been often recognized that there is an intrinsic relationship between both. Indeed, the improvements in the allocative efficiency and better opportunities of risk diversification, directly resulting from financial integration, should help promoting financial development (Edison *et al.*, 2004; Chinn and Ito, 2006). The more precise mechanisms through which financial openness might benefit the development of the financial system have been described in McKinnon (1973), Shaw (1973), Stultz (1999), Henry (2000), Bekaert *et al.* (2000 and 2005), Giannetti *et al.* (2002), Claessens *et al.* (2001), and more recently by Chinn and Ito (2006). In particular, enhanced financial integration should contribute to higher degree of competition within the domestic financial markets. This should lead to improved productive efficiency effects through intermediaries achieving the unit cost reduction. In turn, more developed financial systems could attract investment from domestic and foreign sources, further contributing to financial integration. In this sense, a virtuous cycle between financial liberalization and financial development could be expected.⁴

³ There are a few exceptions here. In particular, by investigating factors influencing financial development in a sample of 108 countries between 1980 and 2000, Chinn and Ito (2006) find that higher level of financial liberalization contributes to the development of equity market. This occurs, however, conditioned on the achievement of a threshold level of legal framework. Another, OECD-specific investigation on the issue is due to Leahy *et al.* (2001).

⁴ However, financial liberalization might involve countries or regions in an uneven way, leading to undesired imbalances and concentration of inter-regional financial intermediation in the hands of more developed regions. Consequently, this might create prejudice for the efficient development of financial intermediation in the less developed countries.

Moreover, in the respective argumentations it appears that the effects of both processes are supposed to generate similar positive growth outcomes. Indeed, both are claimed to be drivers facilitating the mobilization of capital for economic activities (Hicks, 1969; Schumpeter, 1912). Moreover, both solve the liquidity problems through transferring, hedging, and pooling of risk. This channel is particularly important in the generation of technological knowledge. Such activity is by its nature illiquid, but promising high-return. Without sufficiently developed financial markets or without sufficiently abundant financial flows within an integrated area, the savers would have incentives to invest only or prevalently in liquid, low-return projects (Diamond and Dybvig, 1983).

From the above discussion it emerges that financial integration and financial depth can be seen both as substitutes and as complements. The substitution effect occurs either when, due to the incomplete financial development, financial flows from abroad deliver resources to promote domestic investment or when missing or limited international capital movements – due to internal or external barriers – are substituted with internal financial resources. The complementarity comes mostly into play when international financial liberalization feeds domestic financial development. In this sense, policies removing controls on cross-country financial operations may contribute to financial sector development and finally to economic growth (Chinn and Ito, 2006; Ang and McKibbin, 2007). Analogously, the McKinnon-Shaw financial repression conjecture postulates that the restrictions on the financial transactions - such as interest rate controls or considerable reserve requirement – may slow down the development of financial system (McKinnon, 1973; Shaw, 1973; Pagano, 1993; King and Levine, 1993b; Rossi, 1999). This is due either to an overall poor performance of financial sector or to quantitative restraints on resources available for financial intermediation activities, or to both. More precisely, interest rate controls may induce financial intermediaries to become more risk averse, with the effect of more serious credit rationing and thus the exclusion of a part of potentially successful projects. Moreover, such controls may discourage investments in high-risk, but potentially highly profitable projects. This led McKinnon (1973) and Shaw (1973) to postulate financial market liberalization in the way to permit the financial sector for a market-driven allocation of financial resources. Similarly, Chinn and Ito (2006) confirm empirically that the benefits from a more open financial market are possible only if financial system is based on a sufficiently developed legal and institutional framework.⁵

Nevertheless, also the opposite views are not missing. According to Stiglitz (2000), if financial liberalization is carried out too abruptly, it may be the main cause of destabilization of the financial system. There is also empirically confirmed evidence that the interest rate liberalization leads to a significant rise in interest rates and induces in that way financial crises (Demirgüç-Kunt and

⁵ Among conditions assuring the sufficient level of development of financial institutions, Levine *et al.* (2000) and Beck and Levine (2004) analyse the legal system conditions and their link to the development of financial sector. Caprio *et al.* (2004), Claessens *et al.* (2002), La Porta *et al.* (1997, 1998) and Levine (1998, 2002) underline the importance of the assignment of property rights for the proper development of equity markets. On the contrary, for Rajan and Zingales (2003) more important than legal are political rules in assuring a sustainable development of financial system.

Detragiache, 1998). In countries with imperfectly developed financial markets, the simultaneous removal of interest rate and direct credit controls as well as reserves requirements may aggravate market failures problems and lead to stagnation in financial market deepening (Stiglitz, 1994). Similarly, the alleviation of interest rate control may induce more hazardous behaviours of the banks, having incentive to engage in excessively risky lending (McKinnon and Pill, 1997; Hellmann *et al.*, 2000).

3. The measurement issue

There is a broad consensus in the literature concerning problems with the choice of an appropriate method of measurement of both financial liberalization and financial development. Both phenomena are by their very nature complex and there is till now no unique and reliable indicator suitably measuring the respective processes.

The literature related to financial liberalization makes use of three distinctive groups of measures. More precisely, the most intensively applied are indicators of capital market liberalization that can be further distinguished between *de facto* and *de jure* indicators. Less extensively used are measures referring to equity market liberalization (Bekaert and Harvey, 2000; Bekaert *et al.*, 2005; Kaminsky and Schmukler, 2003) and banking sector liberalization.⁶ Gehringer (2013a) surveys the discussion regarding the pros and contras of *de facto* versus *de jure* indicators of capital account liberalization. In particular, *de facto* indicators measure the actual openness of financial market transactions, as expressed by stock, or alternatively, flow ratios of assets, liabilities, the sum of both, or their components (FDI, portfolio investments) in percentage to GDP. One of the most reliable data sources for *de facto* measures of financial liberalization has been offered by Lane and Milesi-Feretti (2001) and updated in Lane and Milesi-Feretti (2007). The crucial advantage of *de facto* measurement of financial liberalization consists in referring to the process actually taking place between the market participants, independently of legal commitments undertaken at the political level. On the contrary, as there is no unique indicator of *de facto* financial openness, it remains unclear, whether stocks or flows of financial assets and/or liabilities (or of the components thereof) should be chosen.⁷ As an alternative, or better, complement to *de facto* measures, several efforts have been made to construct *de jure* indicators, referring to the legal status of the financial liberalization process (Chinn and Ito, 2008). Such indicators are typically based on information from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) and apply different scoring methods (principal component analysis, like in Chinn and Ito (2008)) to derive a composed measure of *de jure* financial integration. Consequently, those measures seem to summarize more completely – than the *de facto*

⁶ Baele *et al.* (2004) elaborate 'a common framework for measuring financial integration', within which they distinguish three categories of measures, namely, price-based, news-based and quantity-based measures. Whereas conceptually promising, these measures are subject to data availability problems, so that they can only be limitedly applied to the practical analyses.

⁷ There is an important justification speaking in favour of the stock measures, as being less volatile and less subject to the measurement error than the respective flow indicators (Kose *et al.*, 2006).

indicators do - the events they refer to. Nevertheless, their biggest drawback is that they in principle allow for an economy to be *de jure* open/closed, whereas *de facto* closed/open, leading to misleading conclusions on the entire process of financial liberalization. This problem might constitute an important concern especially in emerging economies, where discrepancies between legal and actual developments are persistent.⁸

Ang and McKibbin (2007) observe that, although the idea of measuring financial development with the ability of the financial sector operators to diminish burden of transaction costs is very simple, the practical task to find a sufficiently precise approximation is cumbersome. They admit that the existing measures of financial deepening are far from dealing entirely with the issue. Following the past literature, they identify three different financial proxies. First, an extensively used measure of financial development is given by the broad and/or very broad monetary aggregates (M2 and M3) measured in percentage of nominal GDP. A drawback of these measures is that they are far from grasping the actual ability of the financial system to transfer saving to investment projects. Another alternative is given by a measure developed by King and Levine (1993a), constructed as a ratio of assets provided by commercial banks to the sum of the same assets plus the assets issued by the central bank. This measure describes the relative importance of the commercial banks in the financial system under the assumption that the commercial banks are supposed to more efficiently identify and support profitable investment than the central bank would do. It follows, however, that this indicator more precisely measures the intensity of financial intermediation made by private banks rather than the quality of intermediation itself.

A third and probably the most reliable proxy of financial development is given by the ratio of the private credit to GDP. Consequently, this indicator excludes, thus, the credit of the commercial banks given also to the public sector. Most importantly, it relies on the assumption that the private sector is more able to allocate efficiently resources than it is the case for the public sector.

Given the drawbacks of the past ways of measurement of financial development, Neusser and Kugler (1998) propose an alternative measure of progress made by the domestic financial sector. They refer to financial sector GDP in the way to grasp the manifold activities of financial intermediation across the economic system. They observe that such activities are not exclusively carried by monetary institutions, but also by other operators, such as security brokers, dealers, insurance operators and investment funds. Moreover, as such a measure reports the actual economic size of the financial sector, it does not misestimate the degree of financial development in countries that have disproportionally low or high share of liquid assets. But being such a broad measure of financial depth, it doesn't permit to analyse some specific parts of the financial intermediation activities within a

⁸ For the developed economies, given that since decades their great majority achieved the maximum of scores, the respective indicators of *de jure* financial liberalization do not report much of the variability, with lower utility for the purposes of empirical analyses. However, even if the degree of openness in *de jure* absolute terms has been achieved, *de facto* status leaves the question unclear, as there is in principle no maximum level of *de facto* financial openness and this can be interpreted in relative terms.

national system. To cope with this, Neusser and Kugler (1998) recognize the need to develop different indices, referring to each single function within the entire set of financial sector activities.

To sum up, there would be still scope for further research on the measurement issue in order to develop more reliable and more complete indicators of both financial development and financial liberalization. In the short-run and given the non negligible conceptual differences between different indicators, there seem to be the need of clearness, when applying a particular one.

4. Conceptual synthesis on the link between finance and (productivity) growth

4.1 The crucial causality issue

The link between finance and growth is by no means straightforward. The issue regarding the direction of causality is an old one, dating back to Goldsmith (1958, 1969) and Patrick (1966).⁹ Since then, arguments both supporting the Schumpeterian idea of finance spurring growth (Schumpeter, 1912) and the Robinsonian conjecture of economic growth leading to more dynamic financial sector development (Robinson, 1952) have been made in theoretical and empirical discussion. More recently, Greenwood and Jovanovic (1990) rediscover this two-way relationship in their theoretical model, in which agents have the choice to hold both or only one between a safe and a risky production technologies. Thanks to this possibility to observe heterogeneous agents, the model produces curious dynamics, with a threshold level of capital endowment that has to be achieved by agents to enter into the market interactions. With economic development proceeding at the aggregate country-level, more individuals arrive at the threshold value, implying also positive progress for the financial sector. An economy arriving at the world development frontier will be also the one with a fully-developed financial sector. The latter, in turn, will beneficially contribute to spurring further economic growth. This statement is also in line with Guiso *et al.* (2004) who argue that more dynamic economies face naturally higher expectations of profitability assigned to their investment. This intensively attracts domestic and foreign financial flows.

Calderon and Liu (2003) investigate the question of causality between financial development and growth in a dedicated empirical study. Although their general conclusion points towards a relationship going from finance to growth, the Granger causality investigation suggests the coexistence of both ways. They also investigate the Patrick's (1966) stage of development hypothesis, implying that dynamically developing and innovation-based financial market will be particularly important at the early stages of economic development, as in that way it attracts sufficiently financial resources to sustain economic growth. With the passing towards higher economic advanced, the desired properties of financial development expire and they could be taken over by the reversal causality, where growth

⁹ In particular, due to Patrick (1966) is the distinction between the supply-leading and demand-following hypothesis in the context of the finance-growth nexus. The former refers to the causal relation leading from financial development to growth. The latter suggest that it is rather the growth-conditioned intensive demand for financial intermediation that provokes the subsequent boosting of the financial sector.

in developed economies attracts innovative financiers. The results by Calderon and Liu (2003) confirm that, indeed - as theoretically predicted - the stage of development matters. Nevertheless, also for developed countries the relationship doesn't revert into growth contributing to finance.

Another Granger-based test of causality between financial development and TFP (in manufacturing) has been offered by Neusser and Kugler (1998), who distinguish between short-run and long-run causality. They reject the null hypothesis of no causality going from financial development to manufacturing activity, but only for some of the investigated OECD countries. In particular, the strong causal relation has been confirmed for the USA, Japan, Australia and Germany. For some other countries in the sample (France, Sweden and Canada) they find a feedback effect of manufacturing on the financial sector. Finally, these results are valid both for the short-run and long-run causality analysis.

More recently, the question of causality has been empirically solved by applying appropriate econometric techniques that permit more suitably overcome possible endogeneity questions. Indeed, GMM-IV methods permit to instrument endogenous variables so that the estimated coefficients should represent the pure effect of the relationship under analysis. Such a strategy has been applied by Levine *et al.* (2000) as well as by Beck *et al.* (2000) in the framework of financial development and its growth influence and more recently by Bonfiglioli (2008) and Gehringer (2013a) when looking at financial integration and its impact on the sources of growth.

4.2 Financial liberalization and productivity

From the theoretic perspective, the effects of finance on productivity are made strongly dependent on the underlying framework and assumptions. In the exogenous growth models, where technological components are determined outside of the model, more intensive provision of financial resources makes the price of financial instruments lower, attracting investment and thus permanently upgrading the stock - but not the rate of growth – of capital. The growth effect will be only temporary in this case and will progressively burn out as the capital depreciation destroys a part of the capital each period.

Thanks to the conceptual development made with the endogenous growth models, the within-the-system technological progress permits to consider also a direct relationship between financial liberalization and productivity. More precisely, the reduction, or even more, the elimination of barriers to perform financial transactions should allow investors the choice of the most efficient investment destinations. Indeed, financial liberalization permits the investors to allocate their funds wherever they expect to obtain the maximum rent. As a consequence, a reallocation of funds to the most productive investment opportunities will take place, with the productivity growth bonus accruing to the entire economic system. Moreover, under certain circumstances, financial liberalization will contribute to productivity increase in the same financial sector (Levine, 2000). Consequently, more dynamically efficient equity market should contribute to more efficient allocation of financial resources and, ideally, to positive productivity growth. Analogous effects might be expected with a more intensive

domestic penetration of foreign banks (Levine, 1996; Caprio and Honohan, 1999). If the ex-ante banking sector was characterized by highly concentrated market structure, with monopolistic and/or cartelized banks, a higher degree of competition in banking should contribute to cost and excessive profits reduction, with positive effects on investment and productivity growth (Baldwin and Forslid, 2000). Additionally, higher degrees of financial liberalization are most of the times connected with more advanced conditions of corporate governance. Finally, the ongoing financial liberalization process might be interpreted as a signal of institutional advance and higher quality of governmental bodies, so that allocation decisions regarding financial resources might be more probably allocated in productivity-enhancing, more risky, but at the same time promising higher rents investment.

There exists also a broad literature on the more precise relationship between FDI and productivity growth. From the conceptual viewpoint, financial openness coming through FDI flows is supposed to generate positive international knowledge spillovers, ultimately resulting in TFP growth. This should be the case both for the receiving economy (Keller, 2009) and for the home country (Branstetter, 2007; Barba Navarettia and Venables, 2004). But the broad empirical literature reports only mixed evidence here. In the studies based on firm-level data, the results are ambiguous and depend on the sample examined, on the firm's size and on the stage of development of the economy. For instance, Haskel *et al.* (2002) investigate a panel of firms in the UK and report positive knowledge spillovers from foreign to domestic firms. On the contrary, Aitken and Harrison (1999) confirm negative spillover effects from the multinationals to the local firms in the developing economies. On the macro level, instead, the literature finds positive effects of FDI, but mostly conditioned – among others - on local institutional circumstances, the availability of human capital (Borensztein *et al.*, 1998), financial market conditions (Alfaro *et al.*, 2006), sector-level specificities and sectoral composition (Aykut and Sayek, 2007).

In the light of the previous discussion, thus, the arguments in favor of positive productivity effects from financial integration have to be confronted with the possible misallocation effects that might lead to inefficient investment choices in the domestic economy. Such misallocation problems are determined by information asymmetries that divert the available resources from investment promising high productivity growth towards other, less productive, or even speculative destinations (Razin *et al.*, 1999).

Finally, the extent and intensity of productivity effects from financial liberalization is supposed to differ between economic sectors. This recognition led in the past econometric analysis to apply instead of aggregate, sector-level data, like in Levchenko *et al.* (2009) and more recently in Bekaert *et al.* (2011). Moreover, Gehringer (2013b) estimates and compares the effects of financial liberalization on productivity growth for manufacturing and service activities.

4.3 Financial depth and productivity

The productivity effects of financial development have been treated in a number of contributions. The origins of the arguments supporting the view that better developed financiers might have productivity spurring consequences on the rest of the system pertain to the Schumpeterian works (Schumpeter, 1912). Nevertheless, only in the more recent years the insights from the Schumpeter's analysis have been included in more analytical framework of models, in which the impact of financial intermediation on growth is long-lasting. Subsequent efforts by Diamond (1984), Boyd and Prescott (1986), Greenwood and Jovanovic (1990) and King and Levine (1993b) confirmed and revived the Schumpeter's line of argumentation. According to this view, the beneficial role of financial development on productivity consists in spurring allocative efficiency of savings, *ceteris paribus* their growth rates.

This occurs most importantly through the information channel: better developed intermediaries make the cost of information decrease, with the consequence that savings more easily arrive at destinations where they are used for most productive purposes (Boyd and Prescott, 1986; Beck *et al.*, 2000). The better information possessed by intermediaries may regard the innovative activities of businesses (King and Levine, 1993b; Galetovic, 1996) or the overall technological conditions governing the economic system (Greenwood and Jovanovic, 1990). If financial intermediaries possess more exact information about potential innovators, even the riskier ones among the latter might be efficiently relieved from credit constraints, with the ultimate positive impact on the rate of technological progress (Acemoglu *et al.*, 2006; Acemoglu and Zilibotti, 1997).

Additionally, the very nature of financial intermediation permits to attract a higher volume of private savings to finance investment in productive activities (Bencivenga and Smith, 1991). Also, the risk pooling activities by financial intermediaries permit the individual investors to better allocate their financial resources through a more efficient portfolio composition. Saint-Paul (1992) argues, moreover, that better portfolio diversification may enhance specialization in production, with the final effect of productivity growth impulses.

Such positive relationship between financial depth and productivity growth has been confirmed in a number of empirical investigations.¹⁰ Nevertheless, there are reasons to believe that the link between the development of financial markets and productivity growth is an uneven one. In an empirical investigation on the influence of the exchange rate volatility on productivity growth in a panel of 83 countries (1960-2000), Aghion *et al.* (2009) report empirical evidence confirming such a direct impact, but the results crucially depend on the degree of financial development staying behind. They conclude that a country with poor financial market development and flexible exchange rate arrangements faces negative growth impulses that are quantitatively relevant. An analogous result has

¹⁰ For a summary of studies, see Table 2 in Section 5.

been obtained by Alfaro *et al.* (2009) when investigating the effects of FDI on factor accumulation (capital and human) and TFP growth.

More generally and analogously as in the case of the link between financial integration and productivity growth, the review of the literature on the subject suggests that the statistical and economic significance of the effects is usually dependent on different things. Such factors refer, on the one hand, to economic, political and historical circumstances that continuously shape both financial development and productivity dynamics. On the other hand, the results will depend on methodological choices made regarding the measures of financial variables, the level of aggregation of the data and, finally, to a certain extent the econometric method chosen. A more detailed analysis on this is summarized in Section 5.

4.4 Financial system and productivity

There is a sub-chapter of the literature dedicated to the relationship between financial development and growth that especially in the late 90s and the first years of the XX century debated on the influence on growth of the type of the financial system. Here, the typical distinction that has been made concerns the bank-based versus the (stock-)market-based financial system.¹¹ Proponents of bank-based structure stressed on the ability of financial intermediates to overcome market frictions, mainly through the reduction of information asymmetries, and, thus, to enhance the allocative efficiency of capital (Diamond and Dybvig, 1983; Bencivenga and Smith, 1991; Pagano, 1993). This kind of financing channel has been recognized to play a crucial role for small firm which have better chances to get financed by a bank than by the stock market (Fazzari *et al.*, 1988). The postulates of the authors supporting the stock-market-based systems suggest a significant role played in enhancing investment (Barro, 1990). The stock market is able to sustain investment, similarly as in the case of the banking system, through the reduction of information gaps regarding profitability of investment. Moreover, it also improves allocative efficiency of capital, by channeling financial resources towards projects promising the highest rates of return. Finally, there is also a liquidity channel: as the stock market develops and becomes more liquid, the opportunities for more efficient risk sharing increase and with them the cost of capital decreases (Henry, 2000). This is, however, not different for a bank-based system: in a well-developed banking system the pool of capital is high enough to undertake a large spectrum of investment projects and contemporaneously allocate resources more efficiently between short-term and long-term investment. Relating to this last argument, Ang and McKibbin (2007) indicate one crucial reason for the difference between the bank-based and market-based system. The former is supposed to be more intensively involved in offering longer term loans to businesses. The latter, instead, is argued to have rather a short-term impact.

Given the significant similarities in the channels through which both systems support economic performance, the major conclusion to which the literature has arrived in this context is that both

¹¹ A survey of this literature is offered by Levine (2002).

structures have their merits and neither stock-market-based nor bank-based system is clearly superior in sustaining economic efforts. Rather, financial system as such, independently of its precise structure, has to be seen as an instrument alleviating market imperfections related to information asymmetries (Merton, 1995; Levine, 1997; Ndikumana, 2005).

Surprisingly enough, this line of development doesn't explicitly discuss the productivity issue. Much of the discussion turns around the relationship between the financial structure and capital accumulation. Only between the lines one can find arguments supporting the view that the bank-based system is more adequate to support financial innovation. Indeed, given that the banks may specialize in offering customer-tailored instruments, they easily arrive at even minor modifications in financial products. But the empirical evidence regarding the comparative analysis of the influence of the financial structure on productivity is still missing. This might be due to the aforementioned conclusion supporting the view that not the precise characteristics, but rather the stage of the development of the financial system matter in influencing the real economy's activities. Nevertheless, the question of productivity-spurring effect of the two types of financial structure might be interesting. Are such projects not only statically but also dynamically more efficient? Moreover, given that, on the one hand, the bank-based system is potentially more effective in providing financial resources to small enterprises and, on the other hand, that the debate on productivity-firms'-size is still inconclusive, questions remain still open on the relative contribution of the both systems to small- versus large-firms productivity dynamics.

5. What does the empirical evidence say on the productivity channel?

The past empirical literature seems to be still dominated by contributions focusing on the direct influence of finance on growth, as measured by (per capita) GDP rates of change. These investigations report rather mixed results, with positive effects coexisting with the negative ones. In particular, Kose *et al.* (2006) find that macroeconomic studies do not report a significantly positive effect of financial integration on growth. This notwithstanding, there is a recently developing strand of the literature suggesting that not that much the direct as more indirect sources of growth, and in particular, productivity growth might be the most important engines of dynamic and long-lasting economic performance. The discussion offered in this section is aimed at summarizing the most relevant past empirical efforts examining directly the link finance-productivity.

On the financial liberalization side, Table 1 offers a synthetic review of studies explicitly referring to the productivity channel. One of the first works contributing to the detailed examination of the productivity growth channel is due to Bonfiglioli (2008). In a dynamic panel specification, based on the system GMM framework, she analyses at the aggregate level the two main channels of growth, TFP growth and investment, and the influence that financial integration might have on them. Relative to the sample of 70 developing and industrialized countries observed over the period 1975-1999, the findings suggest that there is a significantly positive and direct impact of financial integration on TFP

growth. The same cannot be concluded for capital accumulation. A similar conclusion for the sample of the EU countries was made by Gehringer (2013a), whereas Levchenko *et al.* (2008) find only a short-run effect of financial liberalization on industry-level TFP. Additionally, Bonfiglioli (2008) explicitly investigate the relationship between financial integration, on the one hand, and financial development as well as the probability of crises. The results contradict the hypothesis of financial liberalization spurring financial depth, whereas a weak evidence of a positive contribution to the likelihood of banking crises could be confirmed.

Regarding the link between financial depth and productivity, Neusser and Kugler (1998) run a multivariate time series approach as a valid alternative to the standard in this framework growth-regression methodology (Tab. 2). Such a methodology has the advantage of permitting for a more sophisticated dynamic specification that eventually overcomes the endogeneity problems of the standard cross-section and panel investigations. They apply this time-series perspective to a sample of thirteen OECD economies over the period from 1960 to the early 90s. Differently with respect to the standard procedure in the literature, they measure financial depth by means of GDP of the financial sector, instead of some selective financial indicators, like money base, bank deposits, or total credit issued. They argue that in this way they are capturing the impact of the activities of all and not a part of financial intermediation activities and independently from the specific financial system type.

Table 1. Summary of the empirical evidence on financial liberalization – productivity link.

Authors	Main research design	Measures of fin. lib	Main results
Bekaert <i>et al.</i> (2011)	The impact of financial openness on factor productivity and capital accumulation for 96 countries over the period 1980-2006. Method: pooled OLS with cross-sectional correction of standard errors.	Capital market openness from IMF's AREAER; Bekaert and Harvey (2005) measure of equity market openness; Bekaert (1995) and Edison and Warnock (2003) measure of equity market openness.	Growth effects of financial liberalization are permanent due to the impact of factor productivity. To a lesser extent, also investment channel is effective.
Alfaro <i>et al.</i> (2009)	The influence of FDI on factor accumulation and TFP growth for 62-72 countries between 1975-1995 Method: cross-section OLS	Net FDI inflows from IMF IFS database.	TFP growth due to FDI is positive especially for countries with well-developed financial markets.
Bonfiglioli (2008)	The impact of financial liberalization on aggregate TFP growth and capital accumulation in a sample of 70 developing and industrialized countries (1975-1999). Method: system GMM.	Two <i>de jure</i> and one <i>de facto</i> measure of financial liberalization.	Especially for developing countries, the positive impact of financial liberalization on TFP growth, but only weak for capital accumulation is observed.
Gehring (2013a)	How does financial integration influence direct and indirect growth in the EU context? Sample: 26 EU members between 1990 and 2007. Method: difference GMM.	Chinn & Ito (2008) <i>de jure</i> index; Lane & Milesi-Feretti (2007) <i>de facto</i> measure.	Positive productivity effects; EU integration is supportive to the financial impact on productivity, whereas the euro adoption is not.
Gehring (2013b)	How do the (productivity) growth effects of financial liberalization differ between manufacturing and service activities? Sample: 8 (old) EU members. Method: IV estimations of the first differenced model.	Chinn & Ito (2008) <i>de jure</i> index; Lane & Milesi-Feretti (2007) <i>de facto</i> measure with the distinction between its different components.	Manufacturing productivity growth significantly more positively influenced by financial liberalization than services.
Levchenko <i>et al.</i> (2008)	Analysis of the impact of financial liberalization on production, employment, firm entry, capital accumulation and productivity. Sample: panel of 56 countries, 28 manufacturing industries over 1963-2003. Method: difference-in-difference.	Kaminsky and Schmukler (2008) measure of <i>de jure</i> and gross capital flow to GDP as a measure of <i>de facto</i> financial integration.	The sources of positive growth impact of financial liberalization come along with entry of firms, capital accumulation and increase in employment.

Table 2. Summary of the empirical evidence on financial development – productivity link.

Authors	Main research design	Measure of fin. dev	Main results
Ang & McKibbin (2007)	Does financial development lead to economic growth in Malaysia (1960-2001)? Method: cointegration and causality tests.	A summary measure of financial depth, obtained from a principal component analysis based on three single financial development variables.	Financial depth and economic growth are positively related, but the latter determines the former in a long-run perspective.
Calderon & Liu (2003)	What causes what? Sample consists of 109 developed and developing countries (1960-1994). Method: Geweke decomposition test of direction of causality.	Develop a new stock measure, based on financial intermediary balance sheet data.	Granger causality test reports a coexistence of both-ways relations; however, the support for finance-growth relation is stronger.
Beck <i>et al.</i> (2000)	Does finance influence growth and its sources? Sample of 77 countries (1960-1995). Method: cross-country IV estimator as well as difference and system GMM.	Ratio of financial intermediary credit to the private sector over GDP.	Financial intermediation has positive TFP-enhancing effect, with only negligible influence on both capital accumulation and private savings.
Benhabib & Spiegel (2000)	Investigation of the influence of financial development on “primitives” (factor accumulation) and on TFP growth between 1965 and 1985. Method: generalized method of moments.	Two alternative measures, based on King and Levine (1993a, 1993b).	Positive productivity growth effects of financial development.
Neusser & Kugler (1998)	VAR framework analysis of financial depth and manufacturing productivity growth in 13 OECD countries over three decades. Cointegration analysis.	GDP of financial sector.	GDP of financial sector is cointegrated with TFP (levels), but not with GDP of manufacturing sectors.

6. Concluding remarks

Financial integration and financial developments and their impact on growth have been long discussed in the economic literature so far. Nevertheless, only recently the importance to understand the precise channels of such influence has been underlined and translated into fruitful empirical analyses. Thus, not the general growth impact, but more precisely the impact on the components contributing most to growth, namely, capital accumulation and TFP growth, is worth investigating. Such analysis should permit to understand better the dynamics and (efficiency and welfare) consequences of financial markets' deepening and their integration (Bonfiglioli, 2008). This is consistent with the observation by Gourinchas and Jeanne (2006) that the development gap could be effectively closed by the positive impact on productivity growth.

Whereas the aggregate-level studies on the link finance-growth are not missing, there has been only little attention dedicated to the more disaggregated level of analysis. In this vein, some authors recognized the need to apply sector-level or firm-level data in the way to account for more specific characteristics and differences that could determine the diversified impact of finance on the individual (sectoral or business-level) economic performance. Only recently, Gehringer (2013b) disentangles the differences in the impact coming from financial integration on productivity growth, measured separately for manufacturing and for services. This notwithstanding, there is still the scope for more intensive investigation on the manifold effects of finance on growth, especially assuming the meso- and micro-perspective. More precisely, as financial liberalization promotes better utilization of funds across sectors/firms, it would be interesting to analyse the precise patterns and directions of such a reallocation dynamics.

Finally, on the methodological side, effort is required regarding the ways of measurement of financial liberalization and financial development. Whereas the existing measures are interchangeably used in analysing the impact of finance on growth, they remain rather incomplete and selective towards only some aspects of the underlying phenomena.

References

- Acemoglu, D. and F. Zilibotti (1997). Was Prometheus unbound by chance? Risk, diversification and growth. *Journal of Political Economy* 105 (4): 709–752. URL: <http://ideas.repec.org/p/cpr/ceprdp/1426.html>.
- Acemoglu, D., P. Aghion, and F. Zilibotti, (2006). Distance to frontier, selection, and economic growth. *Journal of the European Economic Association* 4 (1): 37–74. URL: <http://ideas.repec.org/p/cpr/ceprdp/3467.html>.
- Aghion, P., P. Bacchetta, R. Rancière and K. Rogoff (2009). Exchange rate volatility and productivity growth: the role of financial development. *Journal of Monetary Economics* 56 (4): 493–513. URL: <http://ideas.repec.org/p/cpr/ceprdp/5629.html>.
- Aitken, B. J. and A. Harrison (1999). Do domestic firms benefit from direct foreign investment? Evidence from Venezuela. *American Economic Review* 89 (3): 605–18. URL: <http://ideas.repec.org/a/aea/aecrev/v89y1999i3p605-618.html>.
- Alfaro, L., S. Kalemli-Ozcan and S. Sayek (2009). FDI, productivity and financial development. *The World Economy* 32 (1): 111–135. URL: <http://ideas.repec.org/a/bla/worlde/v32y2009i1p111-135.html>.
- Alfaro, L., A. Chanda, S. Kalemli-Ozcan and S. Sayek (2006). How does foreign direct investment promote economic growth? Exploring the effects of financial markets on linkages. NBER Working Paper No. 12522. URL: http://ideas.repec.org/p/deg/conpap/c011_023.html.
- Andersen, T. and F. Tarp (2003). Financial liberalization, financial development and economic growth in LDCs. *Journal of International Development* 15 (2): 189–209. URL: <http://ideas.repec.org/a/wly/jintdv/v15y2003i2p189-209.html>.
- Ang, J. B. and W. J. McKibbin (2007). Financial liberalization, financial sector development and growth: Evidence from Malaysia. *Journal of Development Economics* 84 (1): 215–233. URL: <http://ideas.repec.org/p/een/camaaa/2005-05.html>.
- Arestis, P. and P. Demetriades (1999). Financial liberalization: the experience of developing countries. *Eastern Economic Journal* 25 (4): 441–457. URL: <http://ideas.repec.org/a/eej/eeconj/v25y1999i4p441-457.html>.
- Aykut, D. and S. Sayek (2007). The role of the sectoral composition of FDI on growth. In: Piscitello, L. and G. D. Santangelo (eds.), *Do multinationals feed local development and growth?* Amsterdam: Elsevier.

- Bale, L., A. Ferrando, P. Hördahl, E. Krylova and C. Monnet (2004). Measuring financial integration in the Euro Area. ECB Occasional Paper No. 14. URL: <http://ideas.repec.org/p/ecb/ecbops/20040014.html>.
- Baldwin, R. and R. Forslid (2000). Trade liberalization and endogenous growth: A q-theory approach. *Journal of International Economics* 50 (2): 497-517. URL: <http://ideas.repec.org/p/cpr/ceprdp/1397.html>.
- Barba Navaretti, G. and A. J. Venables (2004). *Multinational firms in the world economy*. Princeton: Princeton University Press.
- Barro, R. J. (1990). The stock market and investment. *The Review of Financial Studies* 3 (1): 115-131. URL: <http://ideas.repec.org/a/oup/rfirst/v3y1990i1p115-31.html>.
- Basu, A. and K. Srinivasan (2002). Foreign direct investment in Africa: some case studies. IMF Working Paper No. 02/61. URL: <http://ideas.repec.org/p/imf/imfwpa/02-61.html>.
- Baumann, S., N. Hermes and R. Lensink (2013). Financial liberalization and economic growth: a meta-analysis. *Journal of International Money and Finance* 33: 255-281. URL: <http://ideas.repec.org/a/eee/jimfin/v33y2013icp255-281.html>.
- Beck, T., R. Levine and N. Loayza (2000). Finance and the sources of growth. *Journal of Financial Economics* 58 (1-2): 261-300. URL: <http://ideas.repec.org/p/wbk/wbrwps/2057.html>.
- Beck, T. and R. Levine (2008). Legal institutions and financial development. In: Menard, C. and M. Shirley (eds.), *Handbook of New Institutional Economics* pp. 251-278. The Netherlands: Kluwer Dordrecht.
- Bekaert, G. (1995). Market integration and investment barriers in emerging equity markets. *World Bank Economic Review* 9 (1): 75-107. URL: <http://ideas.repec.org/a/oup/wbecrv/v9y1995i1p75-107.html>.
- Bekeart, G. and C. R. Harvey (2000). Foreign speculators and emerging equity markets. *Journal of Finance* 55 (2): 565-613. URL: <http://ideas.repec.org/p/nbr/nberwo/6312.html>.
- Bekeart, G. and C. R. Harvey (2005). Chronology of important financial, economic and political events in emerging markets. URL: http://www.duke.edu/_charvey/chronology.htm.
- Bekaert, G., C. R. Harvey and Ch. Lundblad (2001). Emerging equity markets and economic development. *Journal of Development Economics* 66 (2): 465-504. URL: <http://ideas.repec.org/a/eee/deveco/v66y2001i2p465-504.html>.

- Bekaert, G., C. R. Harvey and Ch. Lundblad (2005). Does financial liberalization spur growth? *Journal of Financial Economics* 77 (1): 3-55. URL: <http://ideas.repec.org/p/nbr/nberwo/8245.html>.
- Bekaert, G., C. R. Harvey and Ch. Lundblad (2011). Financial openness and productivity. *World Development* 39 (1): 1-19. URL: <http://ideas.repec.org/a/eee/wdevel/v39y2011i1p1-19.html>.
- Benhabib, J. and M. M. Spiegel (2000). The role of financial development in growth and investment. *Journal of Economic Growth* 5 (4): 341-360. URL: <http://ideas.repec.org/a/kap/jecgro/v5y2000i4p341-60.html>.
- Bencivenga, V. and B. Smith (1991). Financial intermediation and endogenous growth. *Review of Economic Studies* 58 (2): 195-209. URL: <http://ideas.repec.org/p/roc/rocher/124.html>.
- Bonfiglioli, A. (2008). Financial integration, productivity and capital accumulation. *Journal of International Economics* 76 (2): 337-355. URL: <http://ideas.repec.org/p/upf/upfgen/988.html>.
- Borensztein, E., J. De Gregorio and J.-W. Lee (1998). How does foreign direct investment affect economic growth? *Journal of International Economics* 45 (1): 115-35. URL: <http://ideas.repec.org/p/nbr/nberwo/5057.html>.
- Boyd, J. and E. Prescott (1986). Financial intermediary-coalitions. *Journal of Economic Theory* 38 (2): 211-232. URL: <http://ideas.repec.org/p/fip/fedmsr/87.html>.
- Branstetter, L. (2007). Is foreign direct investment a channel of knowledge spillovers? Evidence from Japan's FDI in the United States. *Journal of International Economics* 68 (2): 325-344. URL: <http://ideas.repec.org/a/eee/inecon/v68y2006i2p325-344.html>.
- Calderon, C. and L. Liu (2003). The direction of causality between financial development and economic growth. *Journal of Development Economics* 72 (1): 321-334. URL: <http://ideas.repec.org/p/chb/bcchwp/184.html>.
- Caprio, G. and P. Honohan (1999). Restoring banking stability: beyond supervised capital requirements. *Journal of Economic Perspectives* 13 (4): 43-64. URL: <http://ideas.repec.org/a/aea/jecper/v13y1999i4p43-64.html>.
- Caprio, G., L. Laeven and R. Levine (2004). Governance and bank valuation. *Journal of Financial Intermediation* 16 (4): 584-617. URL: <http://ideas.repec.org/p/wbk/wbrwps/3202.html>.
- Chandavarkar, A. (1992). Of finance and development: neglected and unsettled questions. *World Development* 20 (1): 133-142. URL: <http://ideas.repec.org/a/eee/wdevel/v20y1992i1p133-142.html>.

- Chinn, M. D. and H. Ito (2006). What matters for financial development? Capital controls, institutions, and interactions. *Journal of Development Economics* 81 (1): 163-192. URL: <http://ideas.repec.org/p/cdl/scciec/qt5pv1j341.html>.
- Chinn, M. D. and H. Ito (2008). A new measure of financial openness. *Journal of Comparative Policy Analysis* 10 (3): 309-322. URL: <http://www.tandfonline.com/doi/abs/10.1080/13876980802231123#.UgTTFW1TJaQ>.
- Claessens, S., A. Demirgüç-Kunt and H. Huizinga (2001). How does foreign entry affect domestic banking markets? *Journal of Banking and Finance* 25 (5): 891-911. URL: <http://ideas.repec.org/a/eee/jbfina/v25y2001i5p891-911.html>.
- Claessens, S., S. Djankov, J. Fan and L. Lang (2002). Disentangling the incentive and entrenchment effects of large shareholdings. *Journal of Finance* 57 (6): 2741-2771. URL: <http://ideas.repec.org/a/bla/jfinan/v57y2002i6p2741-2771.html>.
- De Gregorio, J. and P. Guidotti (1995). Financial development and economic growth. *World Development* 23 (3): 433-448. URL: <http://ideas.repec.org/a/eee/wdevel/v23y1995i3p433-448.html>.
- Demirgüç-Kunt, A. and E. Detragiache (1998). The determinants of banking crises in developing and developed countries. *IMF Staff Papers* 45 (1): 81-109. URL: <http://ideas.repec.org/a/pal/imfstp/v45y1998i1p81-109.html>.
- Diamond, D. (1984). Financial intermediation and delegated monitoring. *Review of Economic Studies* 51 (3): 393-414. URL: <http://ideas.repec.org/a/bla/restud/v51y1984i3p393-414.html>.
- Diamond, D. and P. Dybvig (1983). Bank runs, deposit insurance and liquidity. *Journal of Political Economy* 91 (3): 401-419. URL: <http://ideas.repec.org/a/fip/fedmqr/y2000iwinp14-23nv.24no.1.html>.
- Edison, J. H., M. W. Klein, L. A. Ricci and T. Slok (2004). Capital account liberalization and economic performance: Survey and synthesis. *IMF Staff Papers* 51 (2): 220-256. URL: <http://ideas.repec.org/p/nbr/nberwo/9100.html>.
- Edison, H., and F. Warnock (2003). A simple measure of the intensity of capital controls. *Journal of Empirical Finance* 10 (1-2): 81-104. URL: <http://ideas.repec.org/p/imf/imfwpa/01-180.html>.
- Fazzari, S., G. Hubbard and B. Petersen (1988). Financing constraints and corporate investment. *Brookings Papers on Economic Activity* 19 (1): 141-195. URL: <http://ideas.repec.org/a/bin/bpeajo/v19y1988i1988-1p141-206.html>.

- Fernandez-Arias, E. and P. J. Montiel (1996). The surge in capital inflows to developing countries: An analytical overview. *World Bank Economic Review* 10 (1): 51-77. URL: <http://ideas.repec.org/a/oup/wbecrv/v10y1996i1p51-77.html>.
- Galetovic, A. (1996). Specialization, intermediation, and growth. *Journal of Monetary Economics* 38 (3): 549-559. URL: <http://ideas.repec.org/a/eee/moneco/v38y1996i3p549-559.html>.
- Gehring, A. (2013a). Financial liberalization, growth, productivity and capital accumulation: the case of European integration. *International Review of Economics and Finance* 25: 291-309. URL: <http://ideas.repec.org/a/eee/reveco/v25y2013icp291-309.html>.
- Gehring, A. (2013b). Financial liberalization and productivity growth in manufacturing and service sectors: evidence from panel investigation on sector-level data. University of Göttingen, mimeo.
- Giannetti, M., L. Guiso, T. Jappelli, M. Padula and M. Pagano (2002). Financial market integration, corporate financing and economic growth. European Commission Economic Papers No. 179. URL: <http://ideas.repec.org/p/euf/ecopap/0179.html>.
- Gibson, H. D. and E. Tsakalotos (1994). The scope and limits of financial liberalization in developing countries: a critical survey. *Journal of Development Studies* 30 (3): 578-628. URL: <http://www.tandfonline.com/doi/abs/10.1080/00220389408422329#.UgTZZW1TJaQ>.
- Goldsmith, R. (1958). *Financial intermediaries in the American economy since 1900*. Princeton: Princeton University Press.
- Goldsmith, R. (1969). *Financial structure and development*. New Haven: Yale University Press.
- Gourinchas, P., and O. Jeanne (2006). The elusive gains from international financial integration. *Review of Economic Studies* 73 (3): 715–741. URL: <http://ideas.repec.org/p/cpr/ceprdp/3902.html>.
- Greenwood, J. and B. Jovanovic (1990). Financial development, growth, and the distribution of income. *Journal of Political Economy* 98 (5): 1076-1107. URL: <http://ideas.repec.org/p/cvs/starer/88-12.html>.
- Guiso, L., T. Jappelli, M. Padulla and M. Pagano (2004). Financial market integration and economic growth in the EU. *Economic Policy* 19 (40): 523-577. URL: <http://ideas.repec.org/p/cpr/ceprdp/4395.html>.
- Haskel, J. E., S. C. Pereira and M. J. Slaughter (2007). Does inward foreign direct investment boost the productivity of local firms? *Review of Economics and Statistics* 89 (3): 482-496. URL: <http://ideas.repec.org/p/cpr/ceprdp/3384.html>.

- Hellmann, T. F., K. C. Murdock and J. E. Stiglitz (2000). Liberalization, moral hazard in banking, and prudential regulation: are capital requirements enough? *American Economic Review* 90 (1): 147-165. URL: <http://ideas.repec.org/a/aea/aecrev/v90y2000i1p147-165.html>.
- Henry, P. B. (2000). Stock market liberalization, economic reform, and emerging market equity prices. *Journal of Finance* 55 (2): 529-564. URL: <http://ideas.repec.org/a/bla/jfinan/v55y2000i2p529-564.html>.
- Hicks, J. (1969). *A theory of economic history*. Oxford: Clarendon Press.
- Kaminsky, G. L. and S. L. Schmukler (2001a). Short- and long-run integration: Do capital controls matter? Brookings Trade Forum 2000. Brookings Institution, Washington, DC, pp. 125-178. URL: <http://ideas.repec.org/p/wbk/wbrwps/2660.html>.
- Kaminsky, G. L. and S. L. Schmukler (2001b). On booms and crashes: Financial liberalization and stock market cycles. World Bank, Washington, DC, mimeo.
- Kaminsky, G. L. and S. L. Schmukler (2003). Short-run pain, long-run gain: the effects of financial liberalization. NBER Working Paper No. 9787. URL: <http://ideas.repec.org/p/nbr/nberwo/9787.html>.
- Keller, W. (2009). International trade, foreign direct investment, and technology spillovers. NBER Working Paper No. 15442. URL: <http://ideas.repec.org/p/cpr/ceprdp/7503.html>.
- King, R. G. and R. Levine (1993a). Finance and growth: Schumpeter might be right. *Quarterly Journal of Economics* 108 (3): 717-737. URL: <http://ideas.repec.org/a/tpq/qjecon/v108y1993i3p717-37.html>.
- King, R. G. and R. Levine (1993b). Finance, entrepreneurship, and growth: theory and evidence. *Journal of Monetary Economics* 32 (3): 513-542. URL: <http://ideas.repec.org/a/eee/moneco/v32y1993i3p513-542.html>.
- Kose, M. A., E. Prasad, K. Rogoff and S. J. Wei (2006). Financial globalization: a reappraisal. IMF Working Paper No. WP/06/189. URL: <http://ideas.repec.org/p/nbr/nberwo/12484.html>.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer and R. W. Vishny (1997). Legal determinants of external finance. *Journal of Finance* 52 (3): 1131-1150. URL: <http://ideas.repec.org/p/nbr/nberwo/5879.html>.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer and R. W. Vishny (1998). Law and finance. *Journal of Political Economy* 106 (6): 1133-1155. URL: <http://ideas.repec.org/p/nbr/nberwo/5661.html>.

- Lane, P. R. and G. M. Milesi-Feretti (2001). The external wealth of nations: measures of foreign assets and liabilities for industrial and developing countries. *Journal of International Economics* 55 (2): 263-294. URL: <http://ideas.repec.org/p/cpr/ceprdp/2231.html>.
- Lane, P. R. and G. M. Milesi-Feretti (2007). The external wealth of nations mark II: Revised and extended estimates of foreign assets and liabilities, 1970–2004. *Journal of International Economics* 73 (2): 223–250. URL: <http://ideas.repec.org/p/imf/imfwpa/06-69.html>.
- Leahy, M., S. Schich, G. Weihinger, F. Pelgrin and T. Thorgerisson (2001). Contributions of financial systems to growth in OECD countries. OECD Economic Department Working Papers No. 280. URL: <http://ideas.repec.org/p/oec/ecoaaa/280-en.html>.
- Levchenko, A. A., R. Rancière and M. Thoenig (2009). Growth and risk at the industry level: The real effects of financial liberalization. *Journal of Development Economics* 89 (2): 210-222. URL: <http://ideas.repec.org/p/cpr/ceprdp/6715.html>.
- Levine, R. (1996). Foreign banks, financial development, and economic growth. In: Barfield, C. E. (ed.). *International financial markets*. Enterprise Institute Press: Washington DC.
- Levine, R. (1997). Financial development and economic growth: views and agenda. *Journal of Economic Literature* 35 (2): 688-726. URL: <http://ideas.repec.org/a/aea/jeclit/v35y1997i2p688-726.html>.
- Levine, R. and S. Zervos (1998). Stock markets, banks, and economic growth. *American Economic Review* 88 (3): 537-558. URL: <http://ideas.repec.org/a/aea/aecrev/v88y1998i3p537-58.html>.
- Levine, R. (2002). Bank-based or market-based financial systems: which is better? *Journal of Financial Intermediation* 11 (4): 717-737. URL: <http://ideas.repec.org/a/eee/jfinin/v11y2002i4p398-428.html>.
- Levine, R., N. Loayza and T. Beck (2000). Financial intermediation and growth: causality and causes. *Journal of Monetary Economics* 46 (1): 31-77. URL: <http://ideas.repec.org/a/eee/moneco/v46y2000i1p31-77.html>.
- Lucas, R.E. (1988). On the mechanics of economic development. *Journal of Monetary Economics* 22 (1): 3-42. URL: <http://ideas.repec.org/a/eee/moneco/v22y1988i1p3-42.html>.
- McKinnon, R. I. (1973). Money and capital in economic development. Brooking Institution, Washington, D.C.

- McKinnon, R. I. and H. Pill (1997). Credible economic liberalizations and overborrowing. *American Economic Review* 87 (2): 189-193. URL: <http://ideas.repec.org/a/aea/aecrev/v87y1997i2p189-93.html>.
- Meier, G. M. and D. Seers (1984). *Pioneers in development*. New York: Oxford University Press.
- Merton, R.C. (1995). A functional perspective of financial intermediation. *Financial Management* 24 (2): 23-41. URL: <http://ideas.repec.org/a/fma/fmanag/merton95.html>.
- Ndikumana, L. (2005). Financial development, financial structure, and domestic investment: International evidence. *Journal of International Money and Finance* 24 (4): 651-673. URL: <http://ideas.repec.org/a/eee/jimfin/v24y2005i4p651-673.html>.
- Neusser, K. and M. Kugler (1998). Manufacturing growth and financial development: evidence from OECD countries. *The Review of Economics and Statistics* 80 (4): 638-646. URL: <http://ideas.repec.org/a/tpr/restat/v80y1998i4p638-646.html>.
- Pagano, M. (1993). Financial markets and growth: an overview. *European Economic Review* 37 (2-3): 613-622. URL: <http://ideas.repec.org/a/eee/eecrev/v37y1993i2-3p613-622.html>.
- Patrick, H. T. (1996). Financial development and economic growth in underdeveloped countries. *Economic Development and Cultural Change* 14 (2): 174-189. URL: <http://www.jstor.org/stable/1152568>.
- Rajan, R. and L. Zingales (2003). The great reversals: the politics of financial development in the twentieth century. *Journal of Financial Economics* 69 (1): 5-50. URL: <http://ideas.repec.org/a/eee/jfinec/v69y2003i1p5-50.html>.
- Razin, A., E. Sadka and Y. Chi-Wa (1999). Excessive FDI under asymmetric information. NBER Working Paper No. 7400. URL: <http://ideas.repec.org/p/nbr/nberwo/7400.html>.
- Robinson, J. (1952). *The Role of Interest and Other Essays*. London: Macmillan.
- Rossi, M. (1999). Financial fragility and economic performance in developing economies: do capital controls, prudential regulation and supervision matter? IMF Working Paper No. 66. URL: <http://ideas.repec.org/p/imf/imfwpa/99-66.html>.
- Saint-Paul, G. (1992). Technological choice, financial markets and economic development. *European Economic Review* 36 (4): 763-781. URL: <http://ideas.repec.org/a/eee/eecrev/v36y1992i4p763-781.html>.
- Schmukler, S. L. (2003). Financial globalization: gains and pain for developing countries. Word Bank, Washington, DC. URL: <http://ideas.repec.org/a/fip/fedaer/y2004iq2p39-66nv.89no.2.html>.

- Schumpeter, J. A. (1912). *Theorie der wirtschaftlichen Entwicklung*. Leipzig: Duncker & Humblot.
- Shaw, E. S. (1973). *Financial deepening in economic development*. Oxford: Oxford University Press.
- Stiglitz, J. E. (1994) The role of the state in financial markets. In: Bruno, M. and B. Pleskovic (eds.), *Proceedings of the World Bank Annual Conference on Development Economics*, 1993: Supplement to the Word Bank Economic Review and the World Bank Research Observer. World Bank, Washington, D.C., pp.19-52.
- Stiglitz, J. E. (2000). Capital market liberalization, economic growth, and instability. *World Development* 28 (6): 1075-1986. URL: <http://ideas.repec.org/a/eee/wdevel/v28y2000i6p1075-1086.html>.
- Stiglitz, J. E. and A. Weiss (1981). Credit rationing in markets with imperfect information. *American Economic Review* 71 (3): 393-410. URL: <http://ideas.repec.org/a/aea/aecrev/v71y1981i3p393-410.html>.
- Stern, N. (1989). The economics of development: a survey. *Economic Journal* 99 (397): 597-685. URL: <http://ideas.repec.org/a/ecj/econjl/v99y1989i397p597-685.html>.
- Stultz, R. M. (1999). Globalization, corporate finance and the cost of capital. *Journal of Applied Corporate Finance* 12 (3): 8-25. URL: <http://ideas.repec.org/a/bla/jacrfn/v12y1999i3p8-25.html>.
- World Bank (2001). *Global Development Finance 2001*. The World Bank: Washington DC.

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