



The investigation of the relation between financial development and economic development: reviews, appraises, and critiques theoretical and empirical research

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ABSTRACT

This paper reviews, appraises, and critiques theoretical and empirical research on the connections between the operation of the financial system and economic growth. It describes the role of financial system development in economic growth at the macro level, both theoretically and empirically. It also describes briefly the relationship of corporate finance and firm performance. It finally concludes the review and presents some policy implications in view of the reviewed literature. Furthermore, theory and evidence imply that better developed financial systems ease external financing constraints facing firms, which illuminates one mechanism through which financial development influences economic growth. The paper highlights many areas needing additional research.

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Introduction

Economic development is subject to availability of the physical and human capital. Financial resources are needed to ascertain the availability of these capitals. In fact, an economic system equipped with an effective and efficient financial system can mold this investment function in an optimal manner. For example, financial system can contribute towards this end by encouraging the public to save and reallocate their savings to productive investment projects, while competently addressing the issues of risk and return. Hence, financial system development is the process involving actions such as founding and expounding functions of financial institutions, developing new (innovative) financial products and developing markets for these products. However, the recent financial crisis in the developed economies is an example of the downside of the financial development and is an indication of the complexities involved in relationship between economic and financial development.

Moreover, despite the fact that the two are related, the direction of causality in this relationship is yet another undecided phenomenon.

Economists and states have long been interested in the relationship between financial development and economic growth, and promoting financial development has been an integral part of many countries' growth strategies. A body of literature since the work of King and Levine (1993) and Rajan and Zingales (1998) has found a positive link between financial development and growth, yet Levine (2004), reviewing the empirical literature, cautions that available evidence suffers from serious shortcomings, and that we are far from definitive answers to the questions: Does finance cause growth, and if so, how? A critical impediment to a better understanding of this relationship is the lack of exogenous variation in variables of

interest: the literature has relied primarily on evidence from cross-country comparisons.

Economists disagree sharply about the role of the financial sector in economic growth.

Finance is not even discussed in a collection of essays by the "pioneers of development economics" (Meier and Seers, 1984), including three Nobel Prize winners, and Nobel Laureate Robert Lucas (1988, p.6) dismisses finance as an "over-stressed" determinant of economic growth. Joan Robinson (1952, p. 86) famously argued that "where enterprise leads finance follows." From this perspective, finance does not cause growth; finance responds to changing demands from the "real sector." At the other extreme, Nobel Laureate Merton Miller (1988, p.14) argues that, "[the idea] that financial markets contribute to economic growth is a proposition too obvious for serious discussion." Drawing a more restrained conclusion, Bagehot (1873), Schumpeter (1912), Gurley and Shaw (1955), Goldsmith (1969), and McKinnon (1973) reject the idea that the finance-growth nexus can be safely ignored without substantially limiting our understanding of economic growth.

Research that clarifies our understanding of the role of finance in economic growth will have policy implications and shape future policy-oriented research. Information about the impact of finance on economic growth will influence the priority that policy makers and advisors attach to reforming financial sector policies. Furthermore, convincing evidence that the financial system influences long-run economic growth will advertise the urgent need for research on the political, legal, regulatory, and policy determinants of financial development. In contrast, if a sufficiently abundant quantity of research indicates that the operation of the financial sector merely responds to economic development, then this will almost certainly mitigate the intensity of research on the determinants and evolution of financial systems.

Besides reviewing the results, I critique the empirical methods and the measures of financial development. Each of the different econometric methodologies that has been used to study the finance-growth nexus has serious shortcomings. Moreover, the empirical proxies for “financial development” frequently do not measure very accurately the concepts emerging from theoretical models. We are far from definitive answers to the questions: Does finance cause growth, and if it does, how?

Financial development and economic growth

There is no general agreement among economists that financial development is beneficial for growth. In a simple endogenous growth model, Pagano (1993) uses the AK model to conclude that the steady state growth rate depends positively on the percentage of savings diverted to investment, so one channel through which financial deepening affects growth is converting savings to investment.

Arrow (1964) and Debreu (1959) argued that in the absence of any information or transaction costs, there is no need for a financial system, the so-called Arrow- Debreu model. Goldsmith (1969), McKinnon (1973) and Shaw (1973) are among those economists who explored the relationship between financial development and economic growth some four decades ago. They found that financial markets and economic growth rate are positively related. The major weaknesses in their study were; i) lack of theoretical explanation for this relation (the then existing theoretical discussion was about financial development and level of productivity and not the rate of growth), and ii) failure to establish the direction of causality between financial development and growth.

Theoretical foundation

There are two main approaches that explain the relationship between financial and economic development. These approaches are the neo-classical approach and the endogenous growth models, as explained here onward. The neo-classical advocates explain that economic growth is dependent on both the accumulation of productivity input factors and the technological advancement and traditionally, finance was related to the first item. However, if technology is to increase production and thus growth rate, then firms’ capital stock must incorporate these advances which will require a supportive financing system. The underlying assumption is thus, that the interest rate brings state of equilibrium in savings and investments. Neo-classical theory suggests that the optimal growth rate equals the real interest rate. Prior to the realization of market imperfections and information asymmetries, investment decisions were considered independent of financing decisions. Despite the fact that considerable amount of work has been done under the influence of the two main approaches.

However, the uncertainty still exists as far the relation of economic development and financing is concerned. The endogenous growth models realize the importance of entrepreneurship and innovation and magnify the role of finance to induce research and innovation. These models encompass financial institutions impact on economic growth rate.

Financial development affects economic growth through several channels as indicated by the famous “AK” model; $Y_t = AKt$ (Pagano, 1993). This model assumes production of one type of good (Y) with one type of input that is capital (K), and “A” here refers to capital productivity. K depends on the rate of savings, where only certain portion (f) of savings (S) is invested. From this simplest model, a steady growth equation is derived, that is: $g = A f S - d$. Here, “d” is for depreciation rate. This

equation explains that financial development can impact economic growth either through capital productivity or financial system efficiency; in other words by reducing loss of resources, and/ or the saving rate.

Financial system efficiency in capital allocation

The efficient channeling of funds means use of them in most optimal investments. Financial system can foster economic growth through channeling capital to projects with the highest marginal capital productivity. Harrison et al. (1999) stated that the transaction costs are subject to geographic distance between funds suppliers and the users. Funds suppliers’ profit margin increases with increased economic growth that encourages more entrants of suppliers and boost specialization. While this will decrease transaction costs due to reduction in distances and thus results in more economic growth, they showed that the upward movement of employees’ wages in banks hinders the new entrance and the process thus stops.

Further, it is imperative for an effective financial system to design a risk-sharing strategy to be able to encourage investors to participate; else it cannot attain optimal state of economic growth. Greenwood and Jovanovic (1990) showed that financial intermediaries have the ability to manage this risk aspect of projects better than the individual investors. Therefore, financial intermediaries can allocate capital resources to projects with higher returns.

Diamond and Dybvig (1983) stated that managing liquidity for individual investors is a vital function of financial intermediaries. Individual investors in the absence of financial intermediaries will be exposed to investments in illiquid assets and their risk averse nature will hinder this investment. Financial intermediaries can pool the individual investors’ liquidity risk and can invest their deposits in illiquid but high-return assets. In this context, Bencivenga and Smith (1991) showed that financial intermediaries can potentially reduce the level of unnecessary liquidity maintained by individual investors.

Financial intermediaries can invest funds in more illiquid but productive assets. In this way, the chances of premature retirements of investments are reduced and productivity of capital is increased and thus, will promote growth rate. Moreover, the chances of investment of these savings by individual investors in unproductive liquid assets can decrease capital productivity but these intermediaries can potentially have optimum liquid assets and can control unnecessary drain of funds towards unproductive asset. It is identified that stock market offers opportunity to insure against the risk of variation in expected rate of return through diversification and the liquidity risk of capital investments by individuals. Levin (1991) identified that an active stock markets can enhance liquidity within an economic system as investors can sell their assets as and when they desire. Saint-Paul (1992) stated that stock market offers the opportunity of portfolio diversification which can reduce risk of sectoral shocks, hence, business firms can opt for more specialization which furthers growth. An interesting empirical finding by Stulz (2000) stated that investors’ value specialized firms higher than the diversified firms.

Thus, the opportunity to diversify and the liquidity of stock markets contribute towards economic growth. consumption. Also, reduction in investors’ risk exposure due to holdings of diversified portfolio may on one hand induce them to invest in high risk, high return security and might instigate them on the other hand to lower precautionary savings level (Theil, 2001). This means that investors will either try to pursue their own

goals which may not coincide with the goal of economic development or they may increase their present consumption level or the level of more productive investment while reducing the level of precautionary savings.

Empirical evidence: Financial development and economic growth

To better understand the relationship between financial development and economic growth, researchers have employed both industry-level and firm-level data across a broad crosssection of countries. These studies seek to resolve causality issues and to document in greater detail the mechanisms, if any, through which finance influences economic growth.

Industry level analyses

Consider first the influential study by Rajan and Zingales (henceforth RZ, 1998). They argue that better-developed financial intermediaries and markets help overcome market frictions that drive a wedge between the price of external and internal finance. Lower costs of external finance facilitate firm growth and new firm formation. Therefore, industries that are naturally heavy users of external finance should benefit disproportionately more from greater financial development than industries that are not naturally heavy users of external finance. From this perspective, if researchers can identify which industries are "naturally heavy users" of external finance – i.e., if they can identify which industries rely heavily on external finance in an economy with few market frictions – then this establishes a natural test: Do industries that are naturally heavy users of external finance grow faster in economies with better developed financial systems? If they do, then this supports the view that financial development spurs growth by facilitating the flow of external finance.

RZ assume that (1) financial markets in the U.S. are relatively frictionless, (2) in a frictionless financial system, technological factors influence the degree to which an industry uses external finance, and (3) the technological factors influencing external finance are constant (or reasonably constant) across countries. They then examine whether industries that are technologically more dependent on external finance – as defined by external use of funds in the U.S. – grow comparatively faster in countries that are more financially developed. This approach allows RZ (1) to study a particular mechanism, external finance, through which finance operates rather than simply assessing links between finance and growth and (2) to exploit withincountry differences concerning industries.

RZ develop a new methodology to examine the finance-growth relationship. Consider

their formulation. $(*) \dots, i, k k i i, k j l$

$i k j j l l Growth = \sum \alpha Country + \sum \beta Industry + \gamma Share + \delta External$
 $FD + \varepsilon Growth_{i,k}$ is the average annual growth rate of value added or the growth in the number of establishments, in industry k and country i , over the period 1980-90. *Country* and *Industry* are country and industry dummies, respectively. *Share_{i,k}* is the share of industry k in manufacturing in country i in 1980. *Externalk* is the fraction of capital expenditures not financed with internal funds for U.S. firms in the industry k between 1980-90. *FD_i* is an indicator of financial development for country i . RZ interact the external dependence of an industry (*External*) with financial development (*FD*), where the estimated coefficient on the interaction, $\delta 1$, is the focus of their analysis. Thus, if δ is significant and positive, then this implies that an increase in financial development (*FD_i*) will induce a

bigger impact on industrial growth (*Growth_{i,k}*) if this industry relies heavily on external finance (*Externalk*) than if this industry is not a naturally heavy user of external finance. They do not include financial development independently because they focus on within-country, within-industry growth rates. The dummy variables for industries and countries correct for country and industry specific characteristics that might determine industry growth patterns. RZ thus isolate the effect that the interaction of external dependence and financial development/structure has on industry growth rates relative to country and industry means. By including the initial share of an industry, this controls for a convergence effect: industries with a large share might grow more slowly, suggesting a negative sign on γ . RZ include the share in manufacturing rather than the level to focus on within-country, within industry growth rates.

RZ use data on 36 industries across 42 countries, though the U.S is dropped from the analyses since it is used to identify external dependence. To measure financial development, RZ examine (a) total capitalization, which equals the summation of stock market capitalization and domestic credit as a share of GDP and (b) accounting standards. As RZ discuss, there are problems with these measures. Stock market capitalization does not capture the actual amount of capital raised in equity markets. Indeed, some countries provide tax incentives for firms to list, which artificially boosts stock market capitalization without indicating greater external financing or stock market development. Also, as discussed above, stock market capitalization does not necessarily reflect how well the market facilitates exchange. The accounting standards indicator is a rating of the quality of the annual financial reports issued by companies within a country.

The highest value is 90. RZ use the accounting standards measure as a positive signal of the ease with which firms can raise external funds, while noting that it is not a direct measure of the actual amount of external funds that are raised. Beck and Levine (2002) confirm the RZ findings using alternative measures of financial development.

RZ note that the economic magnitude is quite substantial. Compare Machinery, which is an industry at the 75th percentile of dependence (0.45), with Beverages, which has low dependence (0.08) and is at the 25th percentile of dependence. Now, consider Italy, which has high total capitalization (0.98) at the 75th percentile of the sample, and the Philippines, which is at the 25th percentile of total capitalization with a value of 0.46. Due to differences in financial development, the coefficient estimates predict that Machinery should grow 1.3 percent faster than Beverages in Italy in comparison to the Philippines. The actual difference is 3.4, so the estimated value of 1.3 is quite substantial. Thus, financial development has a substantial impact on industrial growth by influencing the availability of external finance. RZ conduct a large number of robustness checks and show that financial development influences industrial growth both through the expansion of existing establishments and through the formation of new Establishments.

Instead of examining the impact of banking sector development on the growth of externally dependent firms, recent work studies the impact of banking market structure and bank competition on industrial development. Cetorelli and Gambera (2001) examine the role played by banking sector concentration on firm access to capital. Using the RZ methodology, they show that bank concentration promotes the growth of industries that are naturally heavy users of external finance, but bank

concentration has a depressing effect on overall economic growth. Claessens and Laeven (2004) disagree, however. They note that industrial organization theory indicates that market concentration is not necessarily a good proxy for the competitiveness of an industry. Consequently, they estimate an industrial organization-based measure of banking system competition. Claessens and Laeven (2004) then show that industries that are naturally heavy users of external finance grow faster in countries with more competitive banking systems.

They find no evidence that banking industry concentration explains industrial sector growth.

The results support the view that banking sector competition fosters the provision of growth enhancing financial services.

Building on RZ, Claessens and Laeven (2003) examine the joint impact of financial sector development and the quality of property rights protection on the access of firms to external finance and the allocation of resources. In particular, they show that financial sector development hurts growth by hindering the access of firms to external finance and insecure property rights hurts growth by leading to a suboptimal allocation of resources by distorting firms into investing excessively in tangible assets. Thus, even when controlling for property rights protection, financial development continues to influence economic growth. This conclusion is different, however, from Johnson, McMillan, and Woodruff's (2002) study of post communist countries. They find that property rights dominate access to external finance in explaining the degree to which firms reinvest their profits.

Extending the RZ approach, Beck, Demircuc-Kunt, Laeven, and Levine (2004) highlight another channel linking finance and growth: removing impediments to small firms. They examine whether industries that are naturally composed of small firms grow faster in financially developed economies. More specifically, as in RZ, they assume that U.S. financial markets are relatively frictionless, so that the sizes of firms within industries in the U.S. reflect technological factors, not financial system frictions. Based on the U.S., they identify the benchmark average firm-size of each industry. Then, comparing across countries and industries, Beck et al (2004) show that industries that are naturally composed of smaller firms grow faster in countries with better-developed financial systems. This result is robust to controlling for the RZ measure of external dependence. These results are consistent with the view that small firms face greater informational and contracting barriers to raising funds than large firms, so that financial development is particularly important for the growth of industries that, for technological reasons, are naturally composed of small firms.

Using a different strategy, Wurgler (2000) also employs industry-level data to examine the relation between financial development and economic growth. Using industry-level data across 65 countries for the period 1963-1995, he computes an investment elasticity that gauges the extent to which a country increases investment in growing industries and decreases investment in declining ones. This is an important contribution because it directly measures the degree to which each country's financial system reallocates the flow of credit. Wurgler (2000) uses standard measures of financial development. He shows that countries with higher levels of financial development both increase investment more in growing industries and decrease investment more in declining industries than financial underdeveloped economies.

Firm level analyses of finance and growth

Demircuc-Kunt and Maksimovic (henceforth DM, 1998) examine whether financial development influences the degree to which firms are constrained from investing in profitable growth opportunities. They focus on the use of long-term debt and external equity in funding firm growth. As in RZ, DM focuses on a particular mechanism through which finance influences growth: does greater financial development remove impediments to the exploitation of profitable growth opportunities. Rather than focusing on the external financing needs of an industry as in RZ, DM estimate the external financing needs of each individual firm in the sample.

DM note that simple correlations between firms' growth and financial development do not control for differences in the amount of external financing needed by firms in the same industry in different countries. These differences may arise because firms in different countries employ different technologies, because profit rates may differ across countries, or because investment opportunities and demand may differ. To control for these differences at the firm level, DM calculate the rate at which each firm can grow using only its internal funds and only its internal funds and short-term borrowing. They then compute the percentage of firms that grow at rates that exceed each of these two estimated rates. This yields estimates of the proportion of firms in each economy relying on external financing to grow. The firm-level data consist of accounting data for the largest publicly traded manufacturing firms in 26 countries. Beck, Demircuc-Kunt, Levine, and Maksimovic (2001) confirm the findings using an extended sample. DM estimate a firm's potential growth rate using the textbook "percentage of sales" financial planning model (Higgins 1974). This approach relates a firm's growth rate of sales to its need for investment funds, based on three simplifying assumptions. First, the ratio of assets used in production to sales is constant. Second, the firm's profits per unit of sales are constant. Finally, the economic depreciation rate equals the accounting depreciation rate. Under these assumptions, the firm's financing need in period t of a firm growing at g percent per year is given by

$$EFN_t = g * Assets_t - (1 - g) * Earnings_t * b$$

where EFN_t is the external financing need and b is the fraction of the firm's earnings that are retained for reinvestment at time t . Earnings are calculated after interest and taxes. While the first term on the right-hand side of equation denotes the required investment for a firm growing at g percent, the second term is the internally available funds for investment, taking the firms' dividend payout as given.

The short-term financed growth rate $STFG_t$ is the maximum growth rate that can be obtained if the firm reinvests all its earnings and obtains enough short-term external resources to maintain the ratio of its short-term liabilities to assets. To compute $STFG_t$, we first replace total assets in by assets that are not financed by new short-term credit, calculated as total assets times one minus the ratio of short-term liabilities to total assets. $STFG_t$ is then given by $STFG_t = ROLTC_t - ROLTC$ where $ROLTC_t$ is the ratio of earnings, after tax and interest, to long-term capital. The definition of $STFG$ thus assumes that the firm does not access any long-term borrowings or sales of equity to finance its growth.

DM then calculate the proportion of firms whose growth rates exceed the estimate of the maximum growth rate that can

be financed by relying only on internal and short-term financing, *PROPORTION_FASTER*.

To analyze whether financial development spurs firm growth, DM run the following cross-country regression $i t i t i t$

$$PROPORTION_FASTER\ FD\ CV\ 1, 2, \dots, _ = \beta + \beta + \varepsilon$$

where *FD* is financial development, *CV* is a set of control variables, and ε is the error term. To measure financial development, DM use (a) the ratio of market capitalization to GDP (Market Capitalization/GDP), (b) Turnover, which equals the total value of shares traded divided by market capitalization, and (c) Bank Assets/GDP, which equals the ratio of domestic assets of deposit banks divided by GDP. Thus, DM include all domestic assets of deposit banks, not just credit to the private sector. As control variables, DM experiment with different combinations of control variables, including economic growth, inflation, the average market to book value of firms in the economy, government subsidies to firms in the economy, the net fixed assets divided by total assets of firms in the economy, the level real per capita GDP, the law and order tradition of the economy.

Love (2003) and Beck, Demircuc-Kunt, and Maksimovic (2005) also use firm level data to examine whether financial development eases financing constraints, though they do not explicitly examine aggregate economic growth. Love finds that the sensitivity of investment to internal funds is greater in countries with more poorly developed financial system. Greater financial development reduces the link between the availability of internal funds and investment.

Thus, the paper is consistent with the findings of DM and RZ. The paper also shows that financial development is particularly effective at easing the constraints of small firms. Beck, Demircuc-Kunt, and Maksimovic (2005) use a different dataset and methodology to investigate the effect of financial development on easing the obstacles that firms face to growing faster. They show that financial development weakens the impact of various barriers to firm growth and that small firms benefit the most from financial development.³¹ In sum and consistent with the industry-level work by Beck, Demircuc-Kunt, Laeven, and Levine (2004), these firm-level studies indicate that financial development removes impediments to firm expansion and exerts a particularly beneficial impact on small firms.

Dyck and Zingales (2003) provide additional firm-level evidence on the mechanisms through which financial development influences growth by examining whether financial development influences the private benefits of controlling a firm. If there are large private benefits of control, this implies that insiders can exploit their positions and help themselves at the expense of the firm. The resultant loss of corporate efficiency could have aggregate growth effects.

Neusser and Kugler (1998) and Levine et al. (2000) represent two different poles in the literature. Neusser and Krugler focuses on time series properties of the data ignoring the simultaneity issue, while Levine et al. (2000) deal with simultaneity without accounting for the time series properties of the data. An alternative is explored in this paper. This alternative consists briefly in the following: In Levine et al. (2000) estimation is conducted in two steps, first a cross-sectional regression of growth on finance and ancillary regressors, and GMM in the second stage to address simultaneity. In our estimation approach, we exploit both the cross-sectional and time-series dimension of the data by using panel cointegration

techniques. In that way we can address the simultaneity issues of the regressors but we also have another important advantage relative to previous research.

In Levine et al. (2000), the first-pass cross-sectional regression represents the long-run regression while the second-pass regression (estimated by GMM) captures the short-run dynamics. The two regressions, however, are not connected as they should: One would expect that the second-pass regression can be derived from the long-run model by appropriate restrictions but this does not seem possible within the Levine et al. (2000) framework. More importantly, Levine et al. (2000) do not formally test that the first-pass regression is valid so it is not certain that it represents something structural. It is, therefore, not certain whether the second-stage regression represents an adjustment to the long-run equilibrium implied by the first stage. Within the panel cointegration framework used in this paper, we are able to address these important issues, and at the same time we retain the flexibility of the Levine et al. (2000) approach in that we are able to provide long-run estimates, short-run adjustments, and address the endogeneity issues by formally treating all variables as part of a vector autoregression in the context of testing for cointegration, and estimating panel cointegrating regressions. More importantly, we can formally test whether there is indeed a structural, long run relationship between financial development and growth.

Conclusions

This paper reviewed theoretical and empirical work on the relationship between financial development and economic growth. Theory illuminates many of the channels through which the emergence of financial instruments, markets and institutions affect -- and are affected by -- economic development. A growing body of empirical analyses, including firm-level studies, industry-level studies, individual country-studies, time-series studies, panel-investigations, and broad cross-country comparisons, demonstrate a strong positive link between the functioning of the financial system and long-run economic growth. While subject to ample qualifications and countervailing views noted throughout this article, the preponderance of evidence suggests that both financial intermediaries and markets matter for growth even when controlling for potential simultaneity bias. Furthermore, microeconomic-based evidence is consistent with the view that better developed financial systems ease external financing constraints facing firms, which illuminates one mechanism through which financial development influences economic growth.

Theory and empirical evidence make it difficult to conclude that the financial system merely - and automatically -- responds to economic activity, or that financial development is an inconsequential addendum to the process of economic growth.

In the remainder of this Conclusion, I discuss broad areas needing additional research. In terms of theory, Section II raised several issues associated with modeling finance and growth.

Here I simply make one broad observation. Our understanding of finance and growth will be substantively advanced by the further modeling of the dynamic interactions between the evolution of the financial system and economic growth (Smith, 2002). Existing work suggests that it is not just finance following industry. But, neither is there any reason to believe that it is just industry following finance. Thus, we need additional thought on the co-evolution of finance and growth. Technology innovation, for instance, may only foster growth in

the presence of a financial system that can evolve effectively to help the economy exploit these new technologies.

Furthermore, technological innovation itself may substantively affect the operation of financial systems by, for example, transforming the acquisition, processing, and dissemination of information. Moreover, the financial system may provide different services at different stages of economic development, so that the financial system needs to evolve if growth is to continue.

These are mere conjectures and ruminations that I hope foster more careful thinking. In terms of empirical work, this paper continuously emphasized that all methods have their problems but that one problem plaguing the entire study of finance and growth pertains to the proxies for financial development. Theory suggests that financial systems influence growth by easing information and transactions costs and thereby improving the acquisition of information about firms, corporate governance, risk management, resource mobilization, and financial exchanges. Too frequently empirical measures of financial development do not directly measure these financial functions. While a growing number of country-specific studies develop financial development indicators more closely tied to theory, more work is needed on improving cross-country indicators of financial development.

Although many empirical studies have investigated the relationship between financial depth, defined as the level of development of financial markets, and economic growth, the results are ambiguous. On the one hand, cross country and panel data studies find positive effects of financial development on output growth even after accounting for other determinants of growth as well as for potential biases induced by simultaneity, omitted variables and unobserved country-specific effect on the finance-growth nexus, see for example King and Levine (1993a,b), Khan and Senhadji (2000) and Levine et al. (2000).

On the other hand, time series studies give contradictory results. Demetriades and Hussein (1996) find little systematic evidence in favor of the view that finance is a leading factor in the process of economic growth. In addition they found that for the majority of the countries they examine, causality is bi-directional, while in some cases financial development follows economic growth. Luintel and Khan (1999) used a sample of ten less developed countries to conclude that the causality between financial development and output growth is bi-directional for all countries. All these results show that a consensus on the role of financial development in the process of economic growth does not so far exist.

Much more research needs to be conducted on the determinants of financial development.

To the extent that financial systems exert a first-order impact on economic growth, we need a fuller understanding of what determines financial development. There are at least two levels of analysis. There is a growing body of research that examines the direct laws, regulations, and macroeconomic policies shaping financial sector operations. There is a second research agenda that studies the political, cultural, and even geographic context shaping financial development. Some research examines how legal systems, regulations, and macroeconomic policies influence finance. LLSV (1997, 1998) show that laws and enforcement mechanisms that protect the rights of outside investors tend to foster financial development. Beck, Demirgüç-Kunt, and Levine (2003b, 2004b) show that legal system adaptability is crucial. The financial needs of the

economy are continuously changing, so that more flexible legal systems do a better job at promoting financial development than more rigid systems. Barth, Caprio, and Levine (2004, 2005) and La Porta, Lopez-de-Silanes, and Shleifer (2005) show that regulations and supervisory practices that force accurate information disclosure and promote private sector monitoring, but do not grant regulators excessive power, boost the overall level of banking sector and stock market development. Monetary and fiscal policies may also affect the taxation of financial intermediaries and the provision of financial services (Bencivenga and Smith, 1992; Huybens and Smith, 1999; Roubini and Sala-i-Martin, 1992, 1995). Indeed, Boyd, Levine, and Smith (2001) show that inflation has a large – albeit non-linear – impact on both stock market and bank development. At a more primitive level, some research studies the forces shaping the laws, regulations, and institutions underlying financial development. LLSV (1998) stress that historically determined differences in legal tradition shape the laws governing financial transactions. Haber (2004b), Haber, Maurer, and Razo (2003), Pagano and Volpin (2001), Roe (1994), and Rajan and Zingales (2003a) focus on how political economy forces shape national policies toward financial development. Guiso, Sapienza, and Zingales (2004) examine the role of social capital in shaping financial systems, while Stulz and Williamson (2003) stress the role of religion in influencing national approaches to financial development. Finally, some scholars emphasize the impact of geographical endowments on the formation of long-lasting institutions that form the foundations of financial systems (Engerman and Sokoloff, 1997, 2002; Acemoglu, Johnson, and Robinson, 2001; Beck, Demirgüç-Kunt, and Levine, 2003a; Easterly and Levine 2003). This broad spectrum of work suggests that political, legal, cultural, and even geographical factors influence the financial system and that much more work is required to better understand the role of financial factors in the process of economic growth.

References

- Aghion P, Howitt P, Mayer-Foulkes, D (2005). The Effect of Financial Development on Convergence: Theory Evidence. *Q. J. Econ.* 120(1): 173-222.
- Ahmed S (1998). Comment on „the legal environment, banks, long-run economic growth. *J. Money, Credit Bank.*, 30: 614–620.
- Allen F, Chakrabarti R, De, S, Qian, J, Qian, M (2007). Financing Firms in India. Working Paper, the Wharton School, University of Pennsylvania.
- Ang JB (2008). A Survey of Recent Developments in the Literature of Finance Growth. *J. Econ. Surv.*, 22(3): 536–576.
- Arestis P, Demetriades PO, Luintel KB (2001). Financial development economic growth: the role of stock markets. *J. Money Credit Bank.*, 33: 16–41.
- Arrow KJ (1964). The Role of Securities in the Optimal Allocation of Risk Bearing. *Rev. Econ. Stud.*, 2: 91-96.
- Demirgüç-Kunt A, Maksimovic V (1998). Law, Finance, Firm Growth. *J. Financ.*, 53(6). 2107-2137.
- Ayyagari M, Demirgüç-Kunt A, Maksimovic V (2007). Formal versus Informal Finance: Evidence from China. World Bank Mimeo.
- Aziz J, Duenwald C (2003). Growth-Financial Intermediation Nexus in China, in W. Tseng M. Rodlauer edited, *.China: Competing in the Global Economy.*, IMF, Washington.
- Bagehot W (1873). *Lombard street*. Homewood, IL: Richard D. Irwin, [1873] 1962 Edition.

- Bencivenga VR, Smith BD (1991). Financial Intermediation Endogenous Growth. *Rev. Econ. Stud.*, 58(2):195-209.
- Caballero RJ (1990). Consumption puzzles precautionary savings. *J. Money Econ.*, 25:113-36.
- Calderon C, Liu L (2003). The direction of causality between financial development economic growth. *J. Dev. Econ.*, 72: 321–334.
- Christopoulos DK, Tsionas EG (2004). Financial development economic growth: evidence from panel unit root cointegration tests. *J. Dev. Econ.*, 7: 55–74.
- Debreu G (1959). *Theory of value*. New York: Wiley.
- Demirguc-kunt A, Maksimovic V (1998). Law, finance firm growth. *J. Financ.*, 53(6): 2107-37.
- Ericsson NR, Irons JS, Tryon RW (2001). Output inflation in the long run. *J. Appl. Econ.*, 16: 241–253.
- Fazzari SM, Hubbard RG, Petersen BC (1988). Financing constraints corporate investment. *Brook. Papers Econ. Activities*, 1: 141-195.
- Geweke J (1982). Measurement of Linear Dependence Feedback between Time Series. *J. Am. Stat. Assoc.*, 79: 304--24.
- Goldsmith RW (1969). *Financial structure development*. New Haven, CT: Yale U. Press.
- Greenwood J, Jovanovic B (1990). Financial development, growth the distribution of income. *J. Polit. Econ.*, 98(5): 1076-1107.
- Guiso L, Sapienza P, Zingales L (2002). Does local financial development matter?. National Bureau of Economic Research Working Paper No. 8922.
- Harrison P, Sussman O, Zeira J (1999). *Finance Growth: Theory New Evidence*. Federal Reserve Board Discussion Paper No. 35.
- Hoshi T, Kashya A, Sharfstein D (1991). Corporate structure, liquidity investment: Evidence from Japanese panel data. *Q. J. Econ.*, 106(1):33-60.
- Hurlin C, Venet B (2008). *Financial Development Growth: A Re- Examination using a Panel Granger Causality Test*.
- Jappelli T, Pagano M (1994). Saving, growth liquidity constraints. *Q. J. Econ.*, 109(1), 83-109.
- Jensen MC, Meckling M (1976). Theory of firm: Managerial behavior, agency costs capital structure. *J. Financ. Econ.*, 3: 305-60.
- King RG, Levine R (1993). Finance, entrepreneurship, growth – theory evidence. *J. Money Econ.*, 32:513-542.
- Kimball MS (1990). Precautionary saving in the small in the large. *Econometrica*, 58: 53-73.
- Lang L, Ofek E, Stulz RM (1996). Leverage, investment firm growth. *J. Fin. Econ.*, 40(1): 3-29.
- Lel HM (1968). Saving uncertainty: The precautionary demand for saving. *Q. J. Econ.*, 82: 465-473.
- Levhari D, Srinivasan TN (1969). Optimal savings under uncertainty. *Rev. Econ. Stud.*, 36(1): 153-63.
- Levine R (1997). *Financial Development Economic Growth: Views Agenda*. *J. Econ. Lit.*, 35(2): 688-726.
- Levine R, Loayza N, Beck T (2000). Financial intermediation growth: causality causes. *J. Money Econ.*, 46: 31-77.
- Luintel BK, Khan M (1999). A quantitative re-assessment of the finance growth nexus: evidence from a multivariate VAR. *J. Dev. Econ.*, 60:381–405.
- Mcconnell JJ, Servaes R(1995). Equity ownership the two faces of debt. *J. Financ. Econ.*, 39: 131-57.
- Mckinnon R (1973). *Money capital in economic development*. Washington, DC: Brookings institution.
- Modigliani F, Miller MH (1958). The cost of capital, corporation finance, the theory of investment. *Am. Econ. Rev.*, 48: 261–297.
- Myers S, Majluf NS (1984). Corporate financing investment decisions when firms have information that investors do not have. *J. Financ. Econ.*, 13: 187-221.
- Nickell S, Nicolitsas D, Dryden N (1998). What makes firms perform well? *Eur. Econ. Rev.*, 41: 783-96.
- Oura O, Kohli R (2008). *Financial Development Growth in India: A Growing Tiger in a Cage?*. IMF Working Paper.
- Pagano M (1993). Financial markets growth, An overview. *Eur. Econ. Rev.*, 37: 613-622.
- Pesaran MH, Smith R (1995). Estimating long-run relationships from dynamic heterogeneous panels. *J. Econ.*, 68: 79–113.
- Rousseau PL, Wachtel A (1998). Financial intermediation economic performance: historical evidence from five industrialized countries. *J. Money Credit Bank.*, 30: 657-678.
- Rajan RG, Zingales L (1998). *Financial Dependence Growth*. *Am. Econ. Rev.*, 88: 559-586.
- Rao BB, Tamazian A (2008). *A Model of Growth Finance: FIML estimates for India*.
- Robinson J (1952). *The Rate of Interest, Other Essays*. London: Macmillan.
- Roubini N, Sala-i-Martin X (1995). A growth model of inflation, tax evasion financial repression. *J. Money Econ.*, 35(2): 275-301.
- Saint-Paul G (1992). Technological choice, financial markets economic development. *Eur. Econ. Rev.*, 36(4): 763-81.
- Schaller H (1993). A symmetric information, liquidity constraints Canadian investment. *Can. J. Econ.*, 26(3): 552-74.
- Schumpeter JA (1912). *Theorie der Wirtschaftlichen Entwicklung [The theory of economic development]*. Leipzig: Dunker & Humblot, 1912; translated by Redvers Opie. Cambridge, MA: Harvard U. Press, 1934.
- Shah A (2011). Impact of judicial efficiency on debt-maturity structure: evidence from judicial districts of Pakistan. 27th PSDE Annual general meeting, Islamabad.
- Shaw ES (1973). *Financial Deepening in Economic Development*. New York: Oxford University Press.
- Stiglitz JE, Weiss A(1981). Credit rationing in markets with imperfect information. *Am. Econ. Rev.*, 71: 393-410.
- Stulz RM (2000). Does financial structure matter for economic growth? A corporate finance perspective. Mimeo, Ohio State University.
- Tsuru K (2000). *Finance Growth: Some Theoretical Considerations, a review of the Empirical Literature*. Economic Development Paper No.228, available at <http://www.oecd/eco/eco>
- Wachtel P (2003). How much do we really know about growth finance?. *Fed. Res. Bank. Atlanta Econ. Rev.*, 8: 33–47.
- Wicksell KJG (1935) *Lectures on Political Economy*, London: Routledge Kegan Paul, Vol. 2.