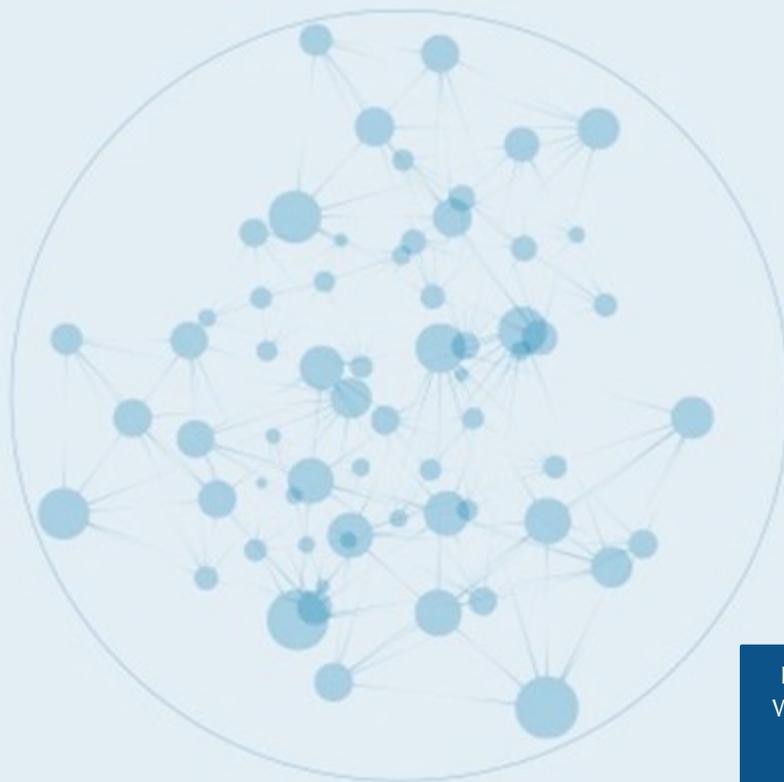




EFFECTS OF FINANCIAL SYSTEM SIZE AND STRUCTURE ON THE REAL ECONOMY

What do we know and
what do we not know?



INQUIRY
WORKING
PAPER

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The UNEP Inquiry

The Inquiry into the Design of a Sustainable Financial System has been initiated by the United Nations Environment Programme to advance policy options to improve the financial system's effectiveness in mobilizing capital towards a green and inclusive economy—in other words, sustainable development. Established in January 2014, it published its final report in October 2015.

More information on the Inquiry is at: www.unep.org/inquiry and www.unepinquiry.org or from: Ms. Mahenau Agha, Director of Outreach mahenau.gha@unep.org.

About this report

Ulrich Volz, SOAS, University of London & German Development Institute is the main author of this paper, which provides an overview of the findings in the empirical economics and finance literature on the effects that various financial system characteristics have on real economic outcomes. Starting with a brief overview of the nexus between the deepening of financial systems and economic growth and development, the paper reviews to what extent financial market concentration, system diversity, the size of institutions, and the type and mandate of financial institutions have on outcomes such as access to finance by firms, the cost of finance, financial stability and the provision of sustainable finance.

Comments are welcome and should be sent to nick.robins@unep.org and uv1@soas.ac.uk.

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Highlights

- **Too much of a good thing?** Financial deepening is generally seen as a critical enabler of economic development. However, recent research suggests that this is only true up to a certain relative size of the financial system compared to the real economy, and that ‘too much finance’ may actually harm economies.
- **Banks are becoming more market-based, increasing risk and opacity and undermining bank-borrower relations.** Even in countries with well-developed capital markets, bank financing is the dominant source of external finance for most small and medium-sized firms (SMEs). However, the distinction between bank-based and market-based financial systems has become increasingly blurred as banking has become more and more market-based. This has arguably increased risk and opacity and undermined the traditional bank-borrower relationship, which is important especially for SMEs.
- **More diverse financial systems with a mix of small and large institutions and a combination of different bank and non-bank financial institutions may be best suited to meet the needs of the real economy.** Empirical evidence suggests quite strongly that smaller ‘stakeholder banks’ (such as cooperative banks, credit unions, community development finance institutions and public savings banks) tend to be better at building the relationships and understanding the information needed to lend to small businesses. The business models of large and foreign-owned commercial banks usually cater to the financial services needs of larger firms.
- **The level of concentration in banking markets needs to find the right balance between preventing oligopolistic structures and enabling long-term relationships with borrowers.** There is evidence that concentration in the banking sector imposes a higher cost of lending on firms and households. Yet there is also some evidence that higher degrees of concentration can allow banks to build long-term relationships with firms, with positive effects on industrial development. The link between concentration and competition and the resilience of financial systems is ambiguous.
- **Less complex and less opaque financial systems are arguably less prone to crisis.** While large banking institutions cannot be said to be more risky *per se* than small ones (they may be actually better at diversifying risk), large multinational banking groups can create and propagate risks in the financial system due to the scale, interconnectedness and the often complex nature of their activities. Moreover, the ‘too-big-to-fail’ problem may create moral hazard issues. Traditional banking may be deemed boring, but it is arguably also less risky and more able to meet most of the financing needs of the real economy.
- **There is a role for public policy in optimizing the financial system structure.** Financial system structures and cultures evolve over decades and are path-dependent. They cannot be changed overnight, but can be influenced through regulation and competition policy. Governments can also increase market competition and the diversity of financial systems by creating development or public savings banks.

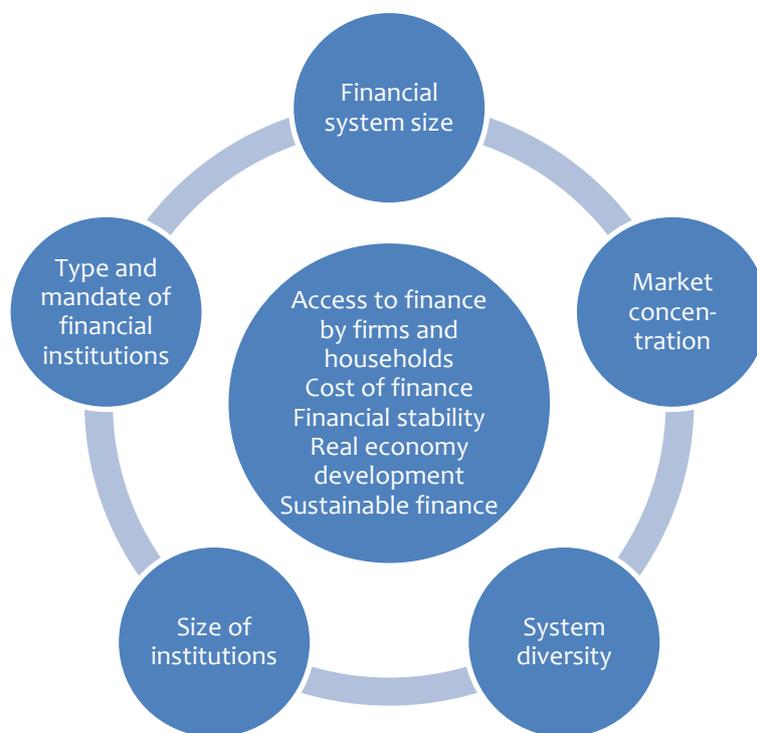
1 Introduction

This paper reviews the banking and finance literature and seeks to summarize the current state of knowledge on the relationship between financial system characteristics and real economic outcomes.¹ A particular focus is the influence that these characteristics (financial system size, financial market concentration, system diversity, size of institutions, type and mandate of financial institutions) have on outcomes such as access to finance by firms, the cost of finance, financial stability and the provision of sustainable finance (Figure 1).

Financial system structures and cultures evolve over decades and are path-dependent. They cannot be changed overnight, but are shaped by policies and regulations. The Glass-Steagall Act of 1933, which separated the activities of commercial banks, investment banks, securities firms and insurance companies in the US, as well as its repeal through the Gramm-Leach-Bliley Act of 1999 are prime examples of how legislation can profoundly change the structure of financial systems – for the better or worse. Steps taken to address financial stability concerns over global systemically important banking organizations by requiring capital surcharges, among others, are another example of public intervention that may shape market structures

Questions over the optimum shape and size of the financial system are therefore of real and practical importance. Given that the findings of the literature are partly ambiguous and sometimes contradictory, many questions remain open and await further empirical investigation. The paper hence tries to take a balanced and cautious approach to adequately summarize what can be learned from the existing literature, and highlight where the evidence remains patchy or vague.

Figure 1: Financial system characteristics and outcomes



Source: Compiled by author.

The paper is structured as follows. The next section briefly reviews the nexus between the financial sector size and economic growth and development. Section 3 reconsiders the debate on market-based

versus bank-based financial systems and highlights that the dichotomy between bank credit-based and capital-based financial systems has become less relevant because banking itself underwent significant changes over the recent decades and has become increasingly market-based. Sections 4 and 5 discuss to what extent size and ownership type affect the lending behaviour of banking institutions. The literature on competition and market concentration is reviewed in Section 6. Section 7 briefly considers what features make financial systems more resilient and less prone to crisis.

2 Financial sector size: do deeper financial systems support growth and development?

The idea that financial sector development stimulates economic growth dates back to Adam Smith (1776), who noted that “trade and industry ... increased very considerably” once the first banks were established in Scotland, and “that banks have contributed a good deal to this increase, cannot be doubted”. Likewise, Walter Bagehot (1873) and Joseph Schumpeter (1912) stressed a positive causal relationship between financial development and economic activity. Inspired by the works of Goldsmith (1969), who was the first to establish a positive correlation between financial deepening and GDP per capita, as well as McKinnon (1973) and Shaw (1973), a large number of empirical studies has investigated the relationship between financial development and economic development and growth. Using different measures for financial deepening, most studies have found positive and statistically significant effects of financial deepening on growth.²

Newer research conducted in the wake of the global financial crisis, however, has questioned this view. Wachtel (2011) argues that “the literature might have over emphasized the strength of the [finance growth] nexus that is much more nuanced than often suggested.” In particular, he points out that “[t]he most commonly used measure of financial sector development, financial depth, is difficult to interpret because it can be a reflection of economy wide leverage as well as the quality and quantity of intermediation.” Other recent papers have uncovered non-linearities in the relationship between financial deepening and growth. Arcand et al. (2015) find that the finance and growth relationship turns negative for high-income countries, with a value of 110% private credit to GDP as the approximate turning point, and the negative relationship between finance and growth turning significant at around 150% private credit to GDP. Some high-income countries reached such levels by in the 2000s. Likewise, Cecchetti and Kharroubi (2012) find that “the level of financial development is good only up to a point, after which it becomes a drag on growth.” Moreover, they find that “a fast-growing financial sector is detrimental to aggregate productivity growth” in advanced economies. In a follow-up paper (2015), they show that “by disproportionately benefiting high collateral/low productivity projects, an exogenous increase in finance reduces total factor productivity growth.” Furthermore, they provide empirical evidence that “financial growth disproportionately harms financially dependent and R&D-intensive industries.” The non-linear view is also supported by recent IMF research: Sahay et al. (2015) find that “the effect of financial development on economic growth is bell-shaped: it weakens at higher levels of financial development.” They attribute this weakening effect to a declining efficiency in investment at high levels of financial development.³ A further explanation for negative effects of too much finance is rent-seeking. As Zingales (2015) points out, “without proper rules, finance can easily degenerate into a rent-seeking activity.”

Overall, a new consensus seems to be emerging that financial deepening may have significant positive effects up to a point, but from a certain level of financial development the contributions of further financial deepening diminish.⁴ Moreover, it has become increasingly clear that a bloated financial system increases the risk and potential cost of crisis.

3 Market-based versus bank-based financial systems

In the debate on the relationship between economic performance and financial structure, economists have long discussed the relative merits of bank-based versus market-based financial systems. In this debate, the US and UK financial systems are seen as demonstrations of market-based financial systems while Japan and Germany are demonstrations of bank-based economies. Levine (2002) summarizes the competing theoretical views of financial structure and economic growth as follows: “The bank-based view holds that bank-based systems – particularly at early stages of economic development and in weak institutional settings – do a better job than market-based financial system at mobilizing savings, allocating capital and exerting corporate control. In contrast, the market-based view emphasizes that markets provide key financial services that stimulate innovation and long-run growth.”

However, the dichotomy between bank-based and market-based financial systems has been increasingly criticized as an ineffective way of distinguishing financial systems. Instead, several researchers including Merton and Bodie (1995) and Levine (1997; 2002) put forward a *financial services view*. As described by Levine (2002), “The *financial services view* ... minimizes the importance of the bank-based versus market-based debate. It stresses that financial arrangements – contracts, markets, and intermediaries – arise to ameliorate market imperfections and provide financial services. That is, financial arrangements arise to assess potential investment opportunities, exert corporate control, facilitate risk management, enhance liquidity, and ease savings mobilization. By providing these financial services more or less effectively, different financial systems promote economic growth to a greater or lesser degree. According to this view, the main issue is not banks or markets. The issue is creating an environment in which intermediaries *and* markets provide sound financial services. Conceptually, the financial services view is fully consistent with both the bank based and market-based views. Nevertheless, the financial services view places the analytical spotlight on how to create better functioning banks and markets, and relegates the bank-based versus market-based debate to the shadows.”⁵

In conducting a cross-country examination including 48 countries, Levine (2002) provides empirical support for the financial services view. According to Levine (2002), “The data provide no evidence for the bank-based or market based views. Distinguishing countries by financial structure does not help in explaining cross-country differences in long-run economic performance. Rather, the cross-country data strongly support the financial services view. Distinguishing countries by their overall level of financial development helps to explain cross-country difference in economic growth. Countries with greater degrees of financial development – as measured by aggregate measures of bank development and market development – enjoy substantially greater economic growth rates. Moreover, the component of financial development explained by the legal rights of outside investors and the efficiency of the legal system in enforcing those rights is strongly and positively linked with long-run growth. The data are consistent with the view that the legal system importantly influences financial sector development and this in turn influences long-run growth.”

In a recent BIS study, Gambacorta et al. (2014) also find that “[u]p to a point, banks and markets both foster economic growth.” In accordance to the non-linear view discussed above, they also find that “[b]eyond that limit, expanded bank lending or market-based financing no longer adds to real growth.” However, they also detect differences in performance during economic downturns: “when it comes to moderating business cycle fluctuations, banks and markets differ considerably in their effects. In normal downturns, healthy banks help to cushion the shock but, when recessions have coincided with financial

crises, we find that the impact on GDP has been three times as severe for bank-oriented economies as it has for market-oriented ones.”

Hardie and Howarth (2013) take a different approach in questioning the analytical usefulness of the dichotomy that distinguishes between bank credit-based and capital-based financial systems, by highlighting that banking itself underwent significant changes over the recent decades. To varying degrees, they argue, banking has become increasingly market-based. Hence, they propose the concept of ‘market-based banking’, as opposed to traditional commercial banking (Table 1). In the latter, banks have close lending relationships with non-financial firms, they are funded by retail deposits and loans are retained on the bank’s balance sheet. In market-based banking, in contrast, banks rely primarily on short-term funding through wholesale markets and loans are often not held through maturity but securitized and sold on to investors. According to Hardie and Howarth (2013), the shift towards market-based banking and the related decline of relationship lending has diminished the role of banks as source of ‘patient capital’ to firms. Instead, it has led to a ‘sales culture’ and an increase in financial activity no longer related to the real economy.

Table 1: Traditional versus market-based banking

	Institutions	Loans	Funding/ liabilities of loans retained	Credit risk of loans retained	Accounting of loans retained	Official Support Pre-Crisis
Traditional banking	Commercial banks/savings banks*	Retained on balance sheet	Customer deposits	Not hedged	At cost	Central Bank Lender of Last Resort
Market-based banking	Commercial banks	Sold, in loan market, via securitization or to shadow banks (ABCP, etc.). ‘Originate-to-distribute’	Wholesale market (inter-bank, bonds, etc.)	Hedged via CDS	Mark to market	Central Bank Lender of Last Resort
	Parallel banks (including investment banks)	Sold, in loan market, via securitization or to shadow banks (ABCP, etc.). ‘Originate-to-distribute’	Wholesale market (inter-bank, bonds, etc.)	Hedged via CDS	Mark to market	None

Note: *These institutions have different names in different countries, i.e., savings and loans, building societies, savings banks, mutual banks.

Source: Hardie and Howarth (2014).

In an analysis of the changes to the US and UK financial systems, Hardie and Maxfield (2013) conclude that the shift towards increasingly market-based banking financial systems has led to a system dominated by “financial institutions that intermediated among themselves in an increasingly concentrated sector, lacked the stabilizing connection to household savers through deposits, and were

increasingly disconnected from corporate borrowers.” They also criticize that “the financial engineering laden system fuelled bank intermediated systems with markets characterized by opacity, liquidity vulnerability, and risk concentration”, posing “an even greater danger to the non-financial sectors of the economy than the impatient capital associated with a traditional market-based system.” They hence characterize market-based banking as the ‘worst of all worlds’.

4 The size of banking institutions

Capital-raising activity in bond and equity markets tends to be concentrated in large, fast-growing firms (Didier et al., 2015). Even in countries with well-developed capital markets, for most SMEs, bank financing is the dominant source of external finance.⁶ Given their importance in providing employment and their contribution to economic output, it is therefore a question of great importance what type of banking institutions are best able to provide the financial services SMEs need. This section will review the research conducted on the extent to which the size of banking institutions affect their lending behaviour. The subsequent section will look at the empirical evidence regarding differences in lending behaviours that are due to the type and mandate of banking institutions.

Regarding the size of banking institutions, the large-bank barriers hypothesis postulates that large banks tend to have difficulty extending relationship loans to informationally opaque small businesses (Berger et al., 2001).⁷ As shown in the seminal work of Stiglitz and Weiss (1981), small business lending can be difficult to financial institutions because of informational opaqueness, moral hazard and adverse selection problems. Large banks, which typically provide transaction lending and other wholesale capital market services to large corporate customers, tend to have organizational structures that are designed for efficient transaction-based lending. This lending is based on “hard” information such as quantitative financial ratios, collateral and credit scores. They often offer standardized credit policies based on easily observable, verifiable, and transmittable data. In contrast, relationship information often involves “soft” data, e.g. information about the character and reliability of the firm’s owner, which may be more difficult to quantify, verify and communicate through the layers of management and ownership of large banking organizations (Berger and Udell, 2002; Stein, 2002). Furthermore, large banks may find it more difficult to engage in relationship lending than locally owned institutions, as relationship lending may require local knowledge, which large banks that are headquartered away will find more difficult to build up (Berger et al., 2001).

A large body of empirical work seems to support the large-bank barriers hypothesis. For example, Berger et al. (1995), Berger and Udell (1995; 1996) find that large banks in the US tend to devote a lower proportion of their assets to small business lending than smaller institutions. Haynes et al. (1999) find that large banks lend to larger, older and more financially secure businesses relatively more often than small banks. That is, they seem to focus on firms that are most likely to receive transactions loans. Another study by Cole et al. (2004) finds that large banks in the US tend to base their small business loan approval decisions more on financial ratios, while the existence of a previous relationship with the borrowing firm mattered more to small banks. Using US data, Berger et al. (2005) find that smaller SMEs borrow from smaller banks and smaller banks have stronger relationships with their borrowers, a finding that was confirmed also in Japan (Uchida et al., 2008; 2012). A survey with a random sample of 220 banks in 20 transition countries also revealed that small banks devote a much higher share of their lending to SMEs than large banks (De Haas et al., 2010).⁸ Looking at the size of branch networks, Hirtle (2007) finds that branches belonging to medium-sized networks are less engaged in small-business lending than are branches of small banks. Using a sample of German banks, Hakenes et al. (2015) find that small regional banks are more important funding providers in regions with low access to finance. In line with the general findings in this literature, a recent study by Berger et al. (forthcoming) that examines a panel of recent US start-ups shows “that greater small bank presence yields significantly more lending to and slightly lower failure rates of these firms during normal times”, but they also find that “these benefits disappear during the financial crisis, possibly because small banks are less diversified and benefit less

from government guarantees than large banks.” Beck et al. (2014), in contrast, find for 21 countries that relationship lending alleviates credit constraints during a cyclical downturn, especially for smaller and more opaque firms and in regions where the downturn is more severe, but not during a boom period.

Only few studies contradict the general pattern that smaller banks tend to provide more finance to SMEs. Looking at bank lending in China, Shen et al. (2009) “find that total bank asset is an insignificant factor for banks’ decision on [SME] lending, but more local lending authority, more competition, carefully designed incentive schemes, and stronger law enforcement encourage commercial banks to lend to SMEs.” But China is arguably a special case, with the strong dominance of state-owned banks.

Several studies have investigated the effects of mergers and acquisitions (M&As) in the banking industry on banks’ lending behaviour. Both Berger et al. (1998) and Peek and Rosengren (1998) find that M&As of banking institutions are associated with a significant negative impact on small business lending. Berger et al. (1998), however, also find that this negative effect may be offset by other banks lending in the same local market. More recent research by Berger et al. (2007), however, suggests that negative effects of M&As on small-business-loan-to-asset ratios may be due to increases in large business lending of the consolidated banks, rather than a reduction of small business lending. Moreover, there seem to be differences regarding the type of institutions involved in a merger: Strahan and Weston (1998) find that consolidation among small banking companies increases bank lending to small businesses.

Overall, the empirical evidence suggests quite strongly that smaller, local banks seem to be better able to cater to the needs of SMEs and tend to extend more credit to such firms by acquiring soft information which helps them to develop long-lasting lending relationships than large banking institutions.

5 Bank ownership type

Differences in ownership may have important effects on the lending behaviour of banks due to differences in mandates and preferences. Banks may be classified into four different categories:

- privately owned commercial banks
- cooperative banks owned by their depositors
- publicly owned banks (including banks owned by local communities)
- foreign banks

As pointed out by Thomä et al. (2015), different forms of ownership may “imply different positioning and different business strategies.” Ayadi et al. (2010) distinguish between ‘stakeholder value banks’ and ‘shareholder value banks’. As Ayadi et al. (2010) explain, “[t]he distinction is ultimately about the banks’ bottom line objectives and the extent to which profit maximization is the central focus of business models.”

Stakeholder banks comprise cooperative banks, credit unions, community development finance institutions, and public savings banks.⁹ Instead of maximizing profit, they typically have a social mission and focus on supporting local economic development. With their traditional, ‘boring’ banking models, they are usually relatively stable, although the crisis of savings banks in Spain shows that savings banks (and other stakeholder banks) are not immune to crisis. Stakeholder banks are typically relatively small institutions that often operate at a regional level. By and large, empirical evidence suggests that such institutions are more effective in supporting local economic growth than large interregional or international banks. For the US, Avery (2004) finds that a greater presence of community banks is associated with higher loan growth for SMEs. Looking at Germany, Hakenes et al. (2015) confirm this pattern and find that small regional banks (which in Germany mean public savings banks and cooperative banks) are particularly “important funding providers in regions with low access to finance.”

Two recent studies investigate the role of cooperative banks in Poland and ten European economies, respectively. Looking at 10 European economies, Groeneveld (2014) shows that cooperative banking groups “exhibit a different performance compared to all other banks throughout different stages in recent business cycles.” He explains this through differences in corporate governance as compared to private commercial banks, as “members’ influence and specific decision making mechanisms seems to lead to a relatively low risk appetite and high capitalization, a high degree of stability and a predominant focus on retail banking.” Using micro data for firms and banks, Hasan et al. (2014) find for Poland that, controlling for the financial situation of the cooperative banks, local cooperative banks provide more lending to small businesses than large domestic and foreign-owned banks. They also find that the loans provided to small businesses by cooperative banks come at a lower cost than those of large domestic or foreign-owned banks. Moreover, Hasan et al. (2014) provide evidence that SMEs “perform better in [transition] counties with a large number of cooperative banks than in counties dominated by foreign-owned banks or large domestic banks.”

Given that stakeholder banks allocate a larger share of their assets to the real economy and SMEs in particular, compared to commercial banks, Thomä et al (2015) argue that these banks are “particularly equipped to service the financing needs of the small green economy”. Glemarec et al. (2015) highlight the potential of public institutions – such as national development banks and national green funds (NGFs) – to provide grants, credit-enhancement instruments or lend directly to projects or activities that

are deemed particularly desirable from a public perspective (such as green investments). National and multinational development banks have been indeed instrumental in financing long-term investments in many countries, although track records differ widely among institutions. In the view of Glemarec et al. (2014), in order to catalyse domestic finance into sustainable investment, NGFs will need to develop a “capacity to foster institutional innovations and partner with other financial and regulatory institutions to increase the diversity and depth of local financial markets”.

The behaviour of foreign banks has received ample attention in research. The starting point is usually the foreign-owned bank barriers hypothesis, which states that foreign-owned banks are less likely to lend to informationally opaque small businesses than domestically owned banks (cf. Berger et al., 2001). The argument is similar to the large-bank barriers hypothesis: because banks entering a foreign market are likely to be large and headquartered far away from small local businesses, they will find it difficult to extend relationship lending to these borrowers. In addition, cultural and language barriers, as well as non-familiarity with the local markets, may make it more difficult and hence costly to gather and process locally based relationship information.¹⁰ There is some empirical evidence that supports this hypothesis. Detragiache et al. (2008) develop a ‘cream-skimming model’ in which “foreign bank entry only benefits more transparent firms, while other firms are either indifferent or worse off.” They find the model “predictions to be consistent with data from a sample of 60 lower income countries” (ibid.). Using enterprise survey data, Volz (2004; 2011) provides empirical support for the foreign-owned-bank barriers hypothesis in Central and Eastern European countries. Studying Argentinean banks, firms and loans, Berger et al. (2001) find that large and foreign-owned institutions may have difficulty in providing relationship loans to opaque small firms. Berger et al. (2008) find that in India, foreign banks are likely to serve as the main bank for ‘transparent firms’, i.e., large, listed and foreign firms. This finding is confirmed by Gormley (2010), whose analysis of the effects of foreign bank entries into India during the 1990s on domestic credit access and firm performance indicates “that foreign banks financed only a small set of very profitable firms upon entry, and that on average, firms were 8 percentage points less likely to have a loan after a foreign bank entry because of a systematic drop in domestic bank loans.” Beck and Martinez Peria (2010) provide estimates for Mexico that suggest that an increase in foreign bank participation led to a significant decline in the number of deposit and loan accounts; only rich and urban municipalities benefited from the presence of foreign banks. Clarke et al. (2001) note that “[i]n general, foreign banks appear to allocate greater shares of their lending portfolios to commercial and industrial loans, providing indirect evidence that foreign banks may be more important in the market for loans to large companies.” However, the results of their cross-country survey of enterprises suggest that even though foreign bank penetration seems to benefit larger firms more than small firms, foreign bank entry apparently improves financing conditions for firms of all sizes. Furthermore, if improved efficiency in the banking system results in an expansion in total lending, the amount of lending to SMEs might increase even if the share of lending to them falls. Also, increased pressure from the presence of foreign banks might cause smaller and domestic banks to modify their behaviour and make them seek new market niches (Clarke et al., 2002). A focus of large and foreign banking institutions on providing financial services to larger corporations could offer opportunities for small local banks to extend their services particularly to SMEs. Moreover, foreign banks may change strategy over time: De Haas and Naaborg (2005) find that although foreign banks in Central and Eastern European transition countries in many cases had a strong initial focus on multinationals and large domestic companies, most have gradually started to lend more also to SMEs. This is partly also due to the foreign banks adopting new lending

technologies, such as credit scoring, which rely on hard credit information instead of soft information these banks find hard to collect.

Overall, the empirical literature suggests quite clearly that different types of banks have different comparative advantages in catering to the financial services needs of different types of firms. Small, local institutions – which often are stakeholder banks such as public savings banks, cooperative banks and credit unions – tend to be more effective in providing SME lending and supporting local economic growth than large interregional or international banks. Large and foreign companies, in contrast, tend to benefit from the services provided by large and foreign banks. Financial systems that comprise a diverse mix of banking institutions (as well as non-bank financial institutions) are therefore likely to best meet the needs of the real economy.

6 Competition and market concentration¹¹

Market outcomes in the financial sector, as in other parts of the economy, are likely to be influenced by the level of competition and market concentration. While more competition is likely to drive down the prices of financial services, competition may also have effects on long-term relationships between banks and firms.

On the one hand, resonating with the large-bank barrier hypothesis, if banking becomes more concentrated, large companies may become the favoured recipients of loans and other financial services whereas small and medium companies, especially in peripheral regions, might find it more difficult to get finance (Chick, 1999). On the other hand, a high concentration in banking might create a quasi-monopolistic situation, which could help banks to establish a mutually beneficial relationship with firms. Petersen and Rajan (1995) argue that because a “monopolistic creditor ... shares in the future surplus generated by the firm through the future rents she is able to extract”, “she may be more willing to offer credit than a similarly placed lender in a competitive market.” Credit market competition thus may impose constraints on the ability of the firm and creditor to intertemporally share surplus, making lending relationships less valuable to a firm because it cannot expect to get help when most in need.¹² Petersen and Rajan show that significantly more young (and small) firms in the US obtain external financing in regions of the US with concentrated markets than in regions with competitive markets. Looking at data on banking market concentration and manufacturing industry-level growth rates for U.S. states during 1899–1929, Mitchener and Wheelock (2013) find that banking market concentration generally had a positive impact on manufacturing sector growth, with a somewhat stronger impact on industries with smaller establishments, lower rates of incorporation and less reliance on bond markets. Using survey data from German manufacturing firms, Fischer (2000) finds that “firms located in more concentrated banking markets have to transfer more project-specific information to their lending banks”, “that banks that systematically acquire more information about their loan customers are able to provide liquidity without inducing additional costly transfer of information” and that “credit [is] more readily available in more concentrated banking markets.” Degryse and Ongena (2007), however, find contrasting evidence in that “bank branches facing stiff local competition engage considerably more in relationship-based lending”; they conclude that “competition and relationships are not necessarily inimical.”

Regarding the effects of banking concentration on growth and industrial development, the evidence is inconclusive. Examining competition in the financial sector, firms’ access to external financing and associated economic growth for 16 countries, Claessens and Laeven (2005) find that that greater competition in countries’ banking systems allows financially dependent industries to grow faster. The findings of Maudos and de Guevara (2011) for a sample of 53 sectors in 21 countries suggest that bank monopoly power has an inverted U-shaped effect on economic growth: bank market power has the highest growth effect at intermediate levels of development. As they point out, this finding is consistent with Petersen and Rajan’s (1995) view that bank competition can have a negative impact on relationship lending and the availability of credit for companies that are informationally more opaque. Cetorelli and Gambera’s (2001) empirical cross-county and cross-industry analysis suggests that “bank concentration promotes the growth of those industrial sectors that are more in need of external finance by facilitating credit access to younger firms”, but they also find “a general depressing effect on growth associated with a concentrated banking industry, which imparts all sectors and all firms indiscriminately.” Using cross-country data on income and industry growth, Deidda and Fattouh (2005) find that banking

concentration is negatively associated with per capita income growth and industrial growth in low-income countries but not in advanced countries.

While the evidence on the effect of concentration on relationship lending and industry growth is somewhat mixed, empirical research seems to suggest quite strongly that more concentrated banking markets are less cost efficient. Already in the 1960s, Edwards (1964) finds a relationship between market structure and market performance in banking markets in the US, with high concentration being associated with adverse effects on price competition. Casu and Girardone (2006; 2009) support this view for EU banking markets. In the UK, the 2000 Cruickshank Report on competition in UK banking highlighted a lack of effective competition as a major problem in the provision of financial services to personal customers as well as SMEs (Cruickshank, 2000). A high level of concentration in the supply of banking services to SMEs was found to result in high profits for the banks and high prices for their customers. Likewise, the Independent Commission on Banking, which was established in June 2010 in response to the financial crisis to consider structural and related non-structural reforms to the UK banking sector to promote financial stability and competition, highlighted the “long-standing competition issues in UK retail banking” (ICB 2011) due to high concentration in core markets (“the largest four banks account for 77% of personal current accounts and 85% of SME current accounts”).

Summing up, the empirical evidence suggests quite strongly that high levels of concentration in the banking sector impose a higher cost of lending on firms and households. While there is some evidence that higher degrees of concentration can allow banks to build long-term relationships with firms, with positive effects on industrial development, other research findings suggest that high banking concentration impedes the growth of the overall economy. It therefore seems that some middle ground – neither fierce competition that erodes banks’ profitability and their ability to enter long-term relationships with borrowers, nor oligopolistic banking markets – may be in the best interest of the real economy.

7 What types of financial systems are more stable?

The recent years have seen a vast number of studies discussing features that may enhance the resilience of financial systems. Given the lack of consensus among economists regarding the appropriate measures to enhance financial system stability, this section will not attempt to provide a comprehensive analysis; instead it will only highlight a few points that seem particularly relevant and relatively non-controversial.

Most economists will agree that less complex financial systems are less prone to crisis. With reference to the global financial crisis Herring and Carmassi (2014), for instance, emphasize that “institutional complexity and opaque interconnections impeded effective oversight by authorities *ex ante* and greatly complicated crisis management and the resolution of institutions *ex post*.” As discussed earlier, Hardie and Howarth (2013) argue that the shift from traditional banking towards market-based banking and the accompanying rise of refinancing through the wholesale market, the popularity of the originate-to-distribute system of lending and proprietary trading has made banking activity more complex and more prone to crisis. Traditional (or “boring”) banking certainly has a long history of booms and busts, but traditional banking crises have been arguably less severe and at least in theory regulators are well aware how to prevent them.

Moreover, many economists have pointed to financial stability risks arising from large, internationally active banks. These are not only complex and difficult to supervise, they may also be ‘too big to fail’, which can create serious moral hazard problems. Bernanke (2010) even went so far as to say that “[i]f the crisis has a single lesson, it is that the too-big-to-fail problem must be solved.” Given their scale and interconnectedness as well as the often complex nature of their activities, large multinational banking groups can create and propagate risks in the financial system. There is ample empirical evidence that large multinational banks contributed to crisis transmission during the global financial crisis. For instance, De Haas and Van Lelyveld (2011), who analysed an international sample of banks, show that during the recent crisis multinational bank subsidiaries curtailed credit growth about twice as much as domestic banks.¹³

A further important lesson relates to the importance of funding structures for banks’ resilience. As De Haas (2012) pointed out, an excessive use of wholesale funding exposes banks to bouts of illiquidity in wholesale markets.

Regarding another important aspect of financial sector structure, the link between concentration and competition and the resilience of financial systems is ambiguous. While several countries with highly concentrated financial systems – including, for instance, the Netherlands and Switzerland – underwent severe financial distress during the global financial crisis, countries with similar levels of concentration in their financial systems, such as Australia and Canada, were affected relatively little. One explanation for such different outcomes may lie in differences of regulatory frameworks, which evidently play a very important role for financial stability.

8 Conclusions

While there is no optimal financial system structure that will work best for all countries at all times, there seem to be certain characteristics associated with better real economy outcomes such as enhanced access to finance by (small and medium) firms, lower cost of finance and greater system resilience. By and large, the following findings appear relatively robust.

There is emerging evidence that financial deepening promotes economic development only up to a certain size of financial systems relative to GDP, and that ‘too much finance’ may actually harm economies.

Even in countries with well-developed capital markets, for most SMEs, bank financing is the dominant source of external finance. The distinction between bank-based versus market-based systems has become increasingly blurred since banking itself underwent significant changes over the recent decades and has become more and more market-based. The shift towards market-based banking has arguably increased risk and opacity in the financial system. An increasing reliance on the wholesale market instead of deposits, the spread of the originate-to-distribute system of lending and proprietary trading has also undermined traditional bank-borrower relationships, which are important especially for SMEs.

Empirical evidence suggests quite strongly that by acquiring soft information which helps them to develop long-lasting lending relationships with their customers (typically small) stakeholder banks are more effective in providing SMEs finance and in supporting local economic activity than large interregional or international banks. The business models of large and foreign-owned commercial banks, in contrast, usually cater to the financial services needs of larger firms. This suggests that diverse financial systems with a mix of small and large institutions and a combination of different bank and non-bank financial institutions may be best suited to meet the needs of the real economy.

There is strong evidence that high levels of concentration in the banking sector impose a higher cost of lending on firms and households. Yet there is also some evidence that higher degrees of concentration can allow banks to build long-term relationships with firms, with positive effects on industrial development. The link between concentration and competition and the resilience of financial systems is ambiguous. It thus seems that a ‘healthy’ dose of competition in banking markets that prevents the development of oligopolistic structures but allows banks to develop long-term relationships with borrowers may be in the best interest of the real economy.

Less complex and less opaque financial systems are likely to be more resilient. While large banking institutions cannot be said to be *per se* more vulnerable to crisis than small ones (they may be actually better at diversifying risk), large multinational banking groups can create and propagate risks in the financial system due to the scale and interconnectedness and often complex nature of their activities. Moreover, the ‘too big to fail’ problem may create moral hazard issues. Traditional banking may be deemed boring, but arguably it is also less risky and able to meet most of the financing needs of the real economy.

The insights that size and structure in the financial sector do matter suggests a role for policymakers. More effective competition can be enabled by addressing distortions arising from financial regulation and by strict enforcement of competition laws. Governments can also increase market competition and diversity of financial systems by creating public savings or development banks.

References

- Arcand, J-L., Berkes, E. and Panizza, U. (2015): “Too Much Finance?” *Journal of Economic Growth* 20 (2), 105–148.
- Avery, R.B. and Samolyk, K.A. (2004): “Bank Consolidation and Small Business Lending: The Role of Community Banks,” *Journal of Financial Services Research* 25 (2-3), 291–325.
- Ayadi, R., Llewellyn, D.T., Schmidt, R.H., Arbak, E. and De Groen, W.P. (2010): *Investigating Diversity in the Banking Sector in Europe. Key Developments, Performance and Role of Cooperative Banks*. Brussels: Centre for European Policy Studies.
- Bagehot, W. (1873): *Lombard Street. A Description of the Money Market*. London: Henry S. King and Co.
- Beck, T. (2012): “The Role of Finance in Economic Development: Benefits, Risks, and Politics,” in: Mueller, D.C. (ed.), *The Oxford Handbook of Capitalism*, Oxford: Oxford University Press, 161–203.
- Beck, T., Degryse, H. and Kneer, C. (2014): “Is More Finance Better? Disentangling Intermediation and Size Effects of Financial Systems,” *Journal of Financial Stability* 10, 50–64.
- Beck, T., Degryse, H. de Haas, R.T.A. and van Horen, N. (2014): “When Arm’s Length is Too Far: Relationship Banking over the Business Cycle,” Center for Economic Research Discussion Paper 2014-042, Tilburg: Tilburg University.
- Beck, T. and Martinez Peria, M.S. (2010): “Foreign Bank Participation and Outreach: Evidence from Mexico,” *Journal of Financial Intermediation* 19 (1), 52–73.
- Berger, A.N., Cerqueiro, G. and Penas, M.F. (forthcoming): “Market Size Structure and Small Business Lending: Are Crisis Times Different from Normal Times?” *Review of Finance*.
- Berger, A.N., Richard J. Rosen and Gregory F. Udell (2007): “Does Market Size Structure Affect Competition? The Case of Small Business Lending,” *Journal of Banking & Finance* 31 (1), 11–33.
- Berger, A.N., Anthony Saunders, Joseph M. Scalise and Gregory F. Udell (1998). “The Effect of Bank Mergers and Acquisitions on Small Business Lending,” *Journal of Financial Economics* 50 (2), 187–229.
- Berger, A.N., Anil K. Kashyap and Joseph Scalise (1995): “The Transformation of the U.S. Banking Industry: What a Long, Strange Trip it’s Been,” *Brookings Papers on Economic Activity* 26, 55–218.
- Berger, A.N., Leora F. Klapper, Maria Soledad Martinez Peria and Rida Zaidi (2008): “Bank Ownership Type and Banking Relationships,” *Journal of Financial Intermediation* 17 (1), 37–62.
- Berger, A.N., Leora F. Klapper and Gregory F. Udell (2001): “The Ability of Banks to Lend to Informationally Opaque Small Businesses,” *Journal of Banking & Finance* 25 (12), 2127–2167.
- Berger, A.N., Nathan H. Miller, Mitchell A. Petersen, Raghuram G. Rajan and Jeremy C. Stein (2005): “Does Function Follow Organizational Form? Evidence from the Lending Practices of Large and Small Banks,” *Journal of Financial Economics* 76 (2), 237–269.
- Berger, A.N. and Gregory F. Udell (1995): “Relationship Lending and Lines of Credit in Small Firm Finance,” *Journal of Business* 68, 351–382.
- Berger, A.N. and Gregory F. Udell (1996): “Universal Banking and the Future of Small Business Lending,” in: A. Saunders and Ingo Walter (eds.), *Financial System Design: The Case for Universal Banking*, Burr Ridge, IL: Irwin Publishing, 559–627.

- Berger, A.N. and Gregory F. Udell (2002): “Small Business Credit Availability and Relationship Lending: The Importance of Bank Organisational Structure,” *Economic Journal* 112 (477), F32–F53.
- Bernanke, B.S. (2010): “Causes of the Recent Financial and Economic Crisis,” Testimony Before the Financial Crisis Inquiry Commission, Washington, D.C., 2 September, <http://www.federalreserve.gov/newsevents/testimony/bernanke20100902a.htm>.
- Casu, B. and Girardone, C. (2006): “Bank Competition, Concentration and Efficiency in the Single European Market,” *Manchester School* 74 (4), 441–468.
- Casu, B. and Girardone, C. (2009): “Does Competition Lead to Efficiency? The Case of EU Commercial Banks,” Centre for Banking Research Working Paper 1/09, London: Cass Business School.
- Cecchetti, S.G. and Kharroubi, E. (2012): “Reassessing the Impact of Finance on Growth,” BIS Working Paper No. 381, Basel: Bank for International Settlements.
- Cecchetti, S.G. and Kharroubi, E. (2015): “Why Does Financial Sector Growth Crowd Out Real Economic Growth?” BIS Working Paper No. 490, Basel: Bank for International Settlements.
- Cetorelli, N. and Gambera, M. (2001): “Banking Market Structure, Financial Dependence and Growth: International Evidence from Industry Data,” *Journal of Finance* 56 (2), 617–648.
- Chick, V. (1999): “Big Banks, Small Business and the Regions in Bankers’ Europe,” in: Toporowski, J. (ed.), *Political Economy and the New Capitalism: Essays in Honour of Sam Aaronovitch*, Routledge: Abingdon, 167–178.
- Clarke, G., Cull, R. and Martinez Peria, M.S. (2002): “Does Foreign Bank Penetration Reduce Access to Credit in Developing Countries? Evidence from Asking Borrowers,” revised version of Working Paper No. 2716, The World Bank, Washington, D.C..
- Clarke, G., Cull, R., Martinez Peria, M.S. and Sanchez, S. M. (2001): “Foreign Bank Entry: Experience, Implications for Developing Countries, and Agenda for Further Research,” Working Paper No. 2698, The World Bank, Washington, D.C..
- Claessens, S. and Laeven, L. (2005): “Financial Dependence, Banking Sector Competition, and Economic Growth,” *Journal of the European Economic Association* 3 (1), 179–207.
- Cline, W. (2015a): “Too Much Finance, or Statistical Illusion?” PIIE Policy Brief No. 15-9, Washington, D.C.: Peterson Institute for International Economics.
- Cline, W. (2015b): “Further Statistical Debate on “Too Much Finance,”” PIIE Working Paper No. 15-16, Washington, D.C.: Peterson Institute for International Economics.
- Cole, R.A., Goldberg L.G. and White, L.J. (2004): “Cookie Cutter vs. Character: The Micro Structure of Small Business Lending by Large and Small Banks,” *Journal of Financial and Quantitative Analysis* 39 (2), 227–251.
- Cruickshank, D. (2000): *Competition in UK Banking. A Report to the Chancellor of the Exchequer*. London: HM Treasury.
- Cull, R., and Martinez Peria, M. S. (2013): “Bank Ownership and Lending Patterns during the 2008–2009 Financial Crisis: Evidence from Latin America and Eastern Europe,” *Journal of Banking & Finance* 37, 4861–4878.

- De Guevara, J.F. and Maudos, J. (2011): “Banking Competition and Economic Growth: Cross-country Evidence,” *The European Journal of Finance*, 17(8), 739–764.
- De Haas, R.T.A. (2012): “Foreign Banks and Financial Stability: Lessons from the Great Recession,” in Volz, U. (ed.), *Financial Stability in Emerging Markets: Dealing with Global Liquidity*, Bonn: German Development Institute.
- De Haas, R.T.A., Ferreira, D. and Taci, A. (2010): “What Determines the Composition of Banks’ Loan Portfolios? Evidence from Transition Countries,” *Journal of Banking & Finance* 34 (2), 388–398.
- De Haas, R.T.A. and Naaborg I. (2005): “Does Foreign Bank Entry Reduce Small Firms’ Access to Credit? Evidence from European Transition Countries,” DNB Working Paper No. 50. Amsterdam: De Nederlandsche Bank.
- Degryse, H. and Ongena, S. (2007): “The Impact of Competition on Bank Orientation,” *Journal of Financial Intermediation* 16 (3), 399–424.
- Deidda, L. and Fattouh, B. (2005): “Concentration in the Banking Industry and Economic Growth,” *Macroeconomic Dynamics* 9 (2), 198–219.
- Detragiache, E., Tressel, T. and Gupta, P. (2008): “Foreign Banks in Poor Countries: Theory and Evidence,” *Journal of Finance* 63 (5), 2123–2160.
- Didier, T., Levine, R.E. and Schmukler, S.L. (2015): “Capital Market Financing, Firm Growth, and Firm Size Distribution,” Policy Research Working Paper No. 7353, Washington, D.C.: World Bank Group.
- Edwards, F.R. (1964): “Concentration in Banking and its Effects on Business Loan Rates,” *The Review of Economics and Statistics*, 46, 294–301.
- Fischer, K.-H. (2000): “Acquisition of Information in Loan Markets and Bank Market Power – An Empirical Investigation,” mimeo, Frankfurt: J.W. Goethe University.
- Gambacorta, L., Yang, J. and Tsatsaronis, K. (2014): “Financial Structure and Growth,” *BIS Quarterly Review* March, 21–35.
- Giovannini, A., Mayer, C., Micossi, S., Di Noia, C., Onado, M., Pagano, M. and Polo, A. (2015): *Restarting European Long-Term Investment Finance. A Green Paper Discussion Document*. London: Centre for Economic Policy Research.
- Glemarec, Y., Bardoux, P. and Roy, T. (2015): “The Role of Policy-driven Institutions in Developing National Financial Systems for Long-term Growth,” *UNEP Inquiry Working Paper*. Geneva.
- Goldsmith, R.W. (1969): *Financial Structure and Development*. New Haven, CT: Yale University Press.
- Gormley, T.A. (2010): “The Impact of Foreign Bank Entry in Emerging Markets: Evidence from India,” *Journal of Financial Intermediation* 19 (1), 26–51.
- Gorton, G. and Winton, A. (2002): “Financial Intermediation,” *Wharton Financial Institutions Center Working Paper 02-28*, Philadelphia, PA: University of Pennsylvania.
- Groeneveld, H.M. (2014): “Features, Facts and Figures of European Cooperative Banking Groups Over Recent Business Cycles,” *Journal of Entrepreneurial and Organizational Diversity* 3 (1), 11–33.
- Hakenes, H., Hasan, I., Molyneux, P. and Xie, R. (2015): “Small Banks and Local Economic Development,” *Review of Finance* 19 (2), 653–683.

Hardie, I. and Howarth, D. (2013): “Framing Market-Based Banking and the Financial Crisis,” in: Hardie, I. and Howarth, D. (eds.), *Market-Based Banking & the International Financial Crisis*, Oxford: Oxford University Press, 22–55.

Hardie, I. and Maxfield, S. (2013): “Market-Based Banking as the Worst of All Worlds: Illustrations from the United States and United Kingdom,” in: Hardie, I. and Howarth, D. (eds.), *Market-Based Banking & the International Financial Crisis*, Oxford: Oxford University Press, 56–78.

Hasan, I., Jackowicz, K., Kowalewski, O. and Kozłowski, Ł. (2014): “Bank Ownership Structure, SME Lending and Local Credit Markets,” Bank of Finland Research Discussion Paper No. 22/2014, Helsinki: Bank of Finland.

Haynes, G.W., Ou, C. and Berney, R. (1999): “Small Business Borrowing from Large and Small Banks,” in: Blanton, J.L., Williams, A. and Rhine, S.L.W. (eds.), *Business Access to Capital and Credit. A Federal Reserve System Research Conference*, Chicago: Federal Reserve Bank of Chicago, 287–327.

Herring, R.J. and Carmassi, J. (2014): “Complexity and Systemic Risk. What’s Changed Since the Crisis?” in Berger, A.N., Molyneux, P. and Wilson, J.O.S. (eds.), *The Oxford Handbook of Banking and Finance*, Second Edition, Oxford: Oxford University Press, 77–112.

Hirtle, B. (2007): “The Impact of Network Size on Bank Branch Performance,” *Journal of Banking & Finance* 31 (12), 3782–3805.

ICB (2011): Final Report. Recommendations. London: Independent Commission on Banking.

King, R. G. and Levine, R. (1993): “Finance and Growth: Schumpeter Might Be Right,” *Quarterly Journal of Economics* 108 (3): 717–37.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R.W. (1999): “The Quality of Government,” *Journal of Law, Economics, and Organization* 15 (1), 222–279.

Levine, R. (1997): “Financial Development and Economic Growth: Views and Agenda,” *Journal of Economic Literature* 35 (2), 688–726.

Levine, R. (2002): “Bank-Based or Market-Based Financial Systems. Which is Better?” *Journal of Financial Intermediation* 11 (4), 398–428.

McKinnon, R.I. (1973): *Money and Capital in Economic Development*. Washington, D.C.: The Brookings Institution.

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

Mitchener, K.J. and Wheelock, D.C. (2013): “Does the Structure of Banking Markets Affect Economic Growth? Evidence from U.S. State Banking Markets,” *Explorations in Economic History* 50 (2), 161–178.

Panizza, U. (2013): “Financial Development and Economic Growth: Known Knowns, Known Unknowns, and Unknown Unknowns,” HEID Working Paper WP14, Geneva: Graduate Institute of International and Development Studies.

Peek, J. and Rosengren, E.S. (1998): “Bank Consolidation and Small Business Lending: It’s Not Just Bank Size That Matters,” *Journal of Banking and Finance* 22 (6), 799–819.

- Petersen, M.A. and Rajan, R.G. (1995): “The Effect of Credit Market Competition on Lending Relationships,” *Quarterly Journal of Economics* 110 (2), 406–443.
- Popov, A. and Udell, G.F. (2012): “Cross-border Banking, Credit Access, and the Financial Crisis,” *Journal of International Economics* 87 (1), 147–161.
- Prieg, L. and Greenham, T. (2012): *Stakeholder Banks. Benefits of Banking Diversity*. London: new economics foundation.
- Sahay, R., Čihák, M., N’Diaye, P., Barajas, A., Bi, R., Ayala, D. Gao, Y., Kyobe, A., Nguyen, L., Saborowski, C., Svirydzenka, K. and Yousefi, S.R. (2015): “Rethinking Financial Deepening: Stability and Growth in Emerging Markets,” IMF Staff Discussion Note No. 15/08, Washington, D.C.: International Monetary Fund.
- Schumpeter, J.A. (1912): *Theorie der wirtschaftlichen Entwicklung*. Leipzig: Duncker & Humblot.
- Shaw, E. (1973): *Financial Deepening in Economic Development*. New York: Oxford University Press.
- Shen, Y., Shen, M., Xu, Z. and Bai, Y. (2009): “Bank Size and Small- and Medium-sized Enterprise (SME) Lending: Evidence from China,” *World Development* 37 (4), 800–811.
- Smith, A. (1776): *An Inquiry into the Nature and Causes of the Wealth of Nations*. London: Penguin (1997 edition).
- Stein, J.C. (2002): “Information Production and Capital Allocation: Decentralized versus Hierarchical Firms,” *The Journal of Finance* 57 (5): 1891–1921.
- Strahan, P.E. and Weston, J.P. (1998): “Small Business Lending and the Changing Structure of the Banking Industry,” *Journal of Banking and Finance* 22, 821–845.
- Thomä, J., Strauss, D., Lutz, V. and Kulle, A.-C. (2015): “Green SMEs and Access to Finance. The Role of Banking Diversity,” UNEP Inquiry Working Paper.
- Uchida, H., Udell, G.F. and Watanabe, W. (2008): “Bank Size and Lending Relationships in Japan”, *Journal of the Japanese and International Economies* 22 (2), 242–267.
- Uchida, H., Udell, G.F. and Yamori, N. (2012): “Loan Officers and Relationship Lending to SMEs,” *Journal of Financial Intermediation* 21 (1), 97–122.
- Uzunkaya, M. (2012): “Economic Performance in Bank-Based and Market-Based Financial Systems. Do Non-Financial Institutions Matter,” *Journal of Applied Finance & Banking* 2 (5), 159–176.
- Volz, U. (2004): “European Financial Integration and the Financing of Local Businesses in the New EU Member States,” EBRD Working Paper No. 89, London: European Bank for Reconstruction and Development.
- Volz, U. (2011): “An Empirical Examination of Firms’ Financing Conditions in Transition Countries,” *International Journal of Emerging and Transition Economies* 3 (1-2), 167–193.
- Wachtel, P. (2011): “The Evolution of the Finance Growth Nexus”, *Comparative Economic Studies* 53 (3), 475–488.
- Vienna Group of Citizens (2015) *Values Based Banking*. UNEP Inquiry Working Paper.
- Zingales, L. (2015): “Does Finance Benefit Society?” NBER Working Paper No. 20894, Cambridge, MA: National Bureau of Economic Research.

Endnotes

1 Although highly important, the insurance sector is not covered in this analysis.

2 See, for instance, King and Levine (1993) and Beck (2012).

3 Other recent papers addressing non-linearities in the finance-growth nexus include Panizza (2013), Gambacorta et al. (2014) and Beck et al. (2014).

4 Cline (2015a) adds a critical perspective on the econometric approach taken by the too much finance literature, arguing that “there is an inherent bias toward a negative quadratic term in a regression that incorporates financial depth, or any other variable that tends to rise with per capita income, along with the usual convergence variable (logarithm of per capita income) in explaining growth. That the results may well be unreliable is demonstrated here by finding a statistically significant negative quadratic term in equations that “explain” growth by spurious influences: doctors per capita, R&D technicians per capita, and fixed telephone lines per capita. In some situations, finance can become excessive; the crises of Iceland and Ireland come to mind. But it is highly premature to adopt as a new stylized fact the recent studies’ supposed thresholds beyond which more finance reduces growth.” See also Cline (2015b).

5 The law and finance view was put forward by La Porta et al. (2000). In an analysis of 87 countries, Uzunkaya (2012) finds that “non-financial institutions, specifically rule of law, do matter for the relative merits of bank-based and market-based financial systems. Market-based systems work better in low rule of law countries, while bank-based systems are more efficient in high-rule of law countries. These results are consistent with the premise that market-based systems’ superiority in solving the incomplete information problem dominates over bank-based systems’ superiority in solving the moral hazard and contract enforcement problems, which are expected to be more prevalent in low rule of law countries. Additionally, the level of financial development also matters in the relative performance of market-based and bank-based financial systems. Market based systems function better in financially developed economies, while bank based systems are better in financially underdeveloped economies. The findings of this paper can explain the co-existence of market-based and bank-based systems throughout the world across both developed and underdeveloped economies. The findings also have policy implications for developed and developing countries with regard to giving priority to improving their markets or banking systems.”

6 See, for instance, a recent report on long-term investment finance in Europe by Giovannini et al. (2015).

7 The following paragraphs draw liberally from Volz (2010).

8 For further references see Berger et al. (2001).

9 On stakeholder banks, see Prieg and Greenham (2012). A Working Paper for the UNEP Inquiry by the Vienna Group of Citizens (2015) also terms these banks, alongside those with explicit social and environmental strategies as ‘Values Based Banks’.

10 A qualification needs to be made concerning the way foreign banks enter the market. A major reason for market entry through the acquisition of domestic banks is to get hold on the local knowledge of the bank’s management and staff and the already existing business relations of these banks. One would thus expect foreign banks to carefully maintain this local knowledge, making the argument of the foreign-owned-bank barriers hypothesis a less strong one if they enter the market through M&As.

11 Parts of this section draw on Volz (2011).

12 Petersen and Rajan (1995) note that this argument dates back to Schumpeter, who suggested that a monopolistic economy offers better incentives for innovation because an innovator can recoup her investment in research and development through future rents.

13 See also Popov and Udell (2012) and Cull and Martinez Peria (2013) for similar findings.



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