Post-financial crisis times: Only a short phase of re-intermediation and re-direction to boring banking business models? Regulatory burden, fintech competition and concentration processes

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Summary: The analysis highlights the aspects of diversified market structures and of local, low-distance banking as advantageous for financial stability. Heterogeneity protects from uniform market behaviour. Local banking can better overcome the problem of asymmetric information, particular in SME lending. Moreover, connections to other socio-political aspects must be factored into the assessment: financial inclusion, presence in rural areas, and depletion of regional disparities. The vast regulation and Europeanisation of supervision, however, —so far neglecting differences in risk profiles and bank sizes—have imposed a higher minimum business size, which led to an extensive merger trend, especially negatively affecting smaller and regionally focussed credit institutions. So it seems that the process of re-intermediation and re-directing banking business back to deposit-based lending, taken place in the aftermath of the financial crisis, was of short length only. Regarding recent developments, we argue that FinTech applications are expected to complement, not to replace, existing banking and financial services. However, we warn against existing regulatory loopholes and regulatory arbitrage for FinTech applications and BigTech approaches.

Zusammenfassung: Die Analyse beleuchtet die Aspekte diversifizierter Marktstrukturen sowie regional ausgerichteter Geschäftsmodelle als vorteilhaft für Finanzstabilität. Heterogenität schützt vor gleichgerichtetem Marktverhalten. Regionale Kreditinstitute können das Problem asymmetrischer Informationen besser überwinden, insbesondere bei der Kreditvergabe an KMU. Darüber hinaus sind weitere gesellschaftspolitische Aspekte

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in die Bewertung einzubeziehen: finanzielle Einbindung, Präsenz in ländlichen Gebieten und der Abbau regionaler Disparitäten. Die umfangreiche Regulierung und Europäisierung der Aufsicht – bislang unter Vernachlässigung von Unterschieden im Risikoprofil und Institutsgrößen – erzwang jedoch eine höhere Mindestinstitutsgröße, was zu einem umfassenden Fusionstrend führte, der insbesondere kleinere und regional ausgerichtete Kreditinstitute negativ traf. Es scheint daher, dass der Prozess der Re-Intermediation und Wiederausrichtung des Bankgeschäfts auf einlagenbasierte Kreditvergabe, der nach der Finanzmarktkrise zu beobachten war, nur kurz währte. In Bezug auf jüngere Entwicklungen argumentieren wir, dass FinTech-Anwendungen vorhandene Bank- und Finanzdienstleistungen ergänzen, aber nicht ersetzen werden. Wir warnen jedoch vor bestehenden Regelungslücken und Möglichkeiten regulatorischer Arbitrage für FinTech-Anwendungen und BigTech-Ansätze

Introduction
Prospects of a comeback of intermediation and "Boring Banking" in the light of recent regulation and financial innovations

In the aftermath of the financial crisis, there seemed to be a consensus among legislators across countries that the banking system should be reduced to its traditional functions, revitalizing "boring" business models of deposit-based lending across the board.[1] The structural flaws inherent in a highly disintermediated financial system could no longer be ignored after the crisis had revealed moral hazard and capital misallocation as shortcomings.

Analysis of the crisis implicitly challenged (see Turner et al. 2010, Capelle-Blancard and Labonne 2011, Rousseau and Wachtel 2011, Law and Singh 2014 or Cecchetti and Kharroubi 2015, among others) the assumption that a growing financial industry[2] benefits the real economy (see Goldsmith 1969 and, synoptically, Levine 2005 as well as Ang 2008). A more critical view has regained traction among financial system analysts. In their opinion, a large financial sector ties up an excessive share of an economy's resources, or drains them from the real sector, and boosts credit cycles until debt ratios become unsustainable (as stated by Tobin as early as 1984, and Minsky 1992). Moreover, the general public has become aware of the risks and unfair competition posed by institutions considered systemically important or too big to fail.[3] The fiscal cost resulting from implicit government liability for such institutions has given rise to profound scepticism among taxpayers about parts of the financial industry and of business models prevalent in investment banking.

1 See Finance Watch 2014: 68, as an example representative of Europe's civil society: "*the crisis did not show that all banks were too risky and that we consequently need more capital markets. It showed instead that some universal and investment banks were too risky and that we need more traditional banks. It is essential to distinguish between business models and promote those that have proven both more robust and more useful for the financing of the real economy*."

2 The value of global financial assets grew from USD 14 trillion in 1980 to 206 trillion in 2007. Relative to the gross world product (GWP), it trebled from 120 percent to 365. Source: United Nations Conference on Trade and Development 2013: 17.

3 On excessive risk-taking by too big to fail (TBTF) institutions (respectively too systemic to fail institutions), see Barrell et al. 2010, Brewer and Jagtiani 2013, Marques et al. 2013, among others. On lower funding cost and the extent of supposed government liability for TBTF institutions, see, for instance, Boyd and Gertler 1993, Soussa 2000, Fecht et al. 2008, Völz and Wedow 2009, Gandhi and Lustig 2010, Ueda and Di Mauro 2012, Siegert and Willison 2015.

The impact of the wave of post-crisis bank regulation is going to be manifold. It cannot be assessed conclusively yet.[4] What we see, however, is a strong trend among financial institutions to deleverage, that is, reduce their borrowed capital level. Many lines of the banking business are considerably less profitable now than they were before the crisis. Reasons range from writing down non-performing loans, through cost increases due to tighter regulation, to incomes declining because of low global interest rates.[5] In addition, earnings are coming under pressure across the industry due to the digitalization of customer relations, new competitors especially in the payments business[6] and the proliferation of shadow banks such as crowdfunding platforms or private debt funds (for details, see German Council of Economic Experts 2015 as well as Rehm 2016, for instance).

As regards organizational structures, reregulation has prompted financial institutions to reinforce their risk management and compliance departments. By effectively stepping up the minimum size required of a bank's business, regulators have set off a wave of mergers among small institutions, in particular.[7] Alessandrini et al. 2016: 17, cast a critical look at the situation in Europe: "*Given that a large part of meeting regulation is a fixed cost, its burden falls proportionally more on small, local banks than large banks. While this asymmetric burden is recognized and in part corrected in the United States, it is instead almost ignored in the European Union, where the 'one-size fits all' rule prevails.* [...] *There is an apparent contradiction between the policy of banking consolidation and retrenchment and the objectives of financial stability and economic development.*"

Policymakers have succeeded in rehabilitating loan securitization.[8] To check the moral hazards associated with securitization, article 405 of the European Capital Requirements Regulation (CRR) obliges originators to retain a minimum of five percent of the nominal value of the securitized exposure or the first-loss tranche.[9] It remains doubtful, though, whether risk retention to that tune will suffice to overcome the information asymmetry that notoriously tempts originators to securitize bad risks, above all.

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4 See Kotz 2009, 2011 and 2014, among others, for insights into the political debates and economic necessities of a Europeanization of regulation and banking supervision.

5 For empirical research on interest rate levels, yield curves and the profitability of banks, see Demirgüç-Kunt and Huizinga 1999, Alessandrini and Nelson 2015, Borio et al. 2015, among others.

6 On current trends in the German and European payments industry, see Schiereck 2018, among others.

7 In the European Union (EU-28, fixed composition), the number of credit institutions declined by 2,050 or 25 percent from January 2008 to January 2018. In the Euro area (19 members, fixed composition), it fell by 1,695 or 26 percent. In Germany, the number of credit institutions dropped by 396 during that time (source: ECB Statistical Data Warehouse (SDW), Financial Corporations/Total Number of Credit Institutions). In parallel, the size of German cooperative banks increased by 92 percent from 506 million euros to 970 on average, while the average size of Sparkassen grew by 35 percent from 2.3 billion euros to 3.1 (source: Deutsche Bundesbank, Banking Statistics, table I.3).

8 See Basel Committee on Banking Supervision and International Organization of Securities Commissions 2015. The European Commission's initiative to revive securitization forms part of its capital markets union (CMU) action plan adopted in September 2015. It led to Regulation on Laying Down a General Framework for Securitisation and Creating a Specific Framework for Simple, Transparent and Standardised Securitisation (EU/2017/2402) and to lower risk weights in equity requirement for so-called STS securitisations according to Regulation EU/2017/240.

9 In the wake of the financial crisis, Germany introduced a retention rate of 10 percent (KWG banking act, § 18a, repealed version). When the CRR came into force, that rate was reduced to 5 percent.

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Against that backdrop, the question is whether and to what extent legislators have met their primary post-crisis objective of making banks more “boring” again (see Krugman 2009 and 2010). Must we admit that many in our industry have relapsed into pre-crisis thinking habits already? The issue is becoming even more urgent given the rise of crowd equity and crowdlending as new business models compromised by information asymmetry quite like securitization.

This article looks at such issues (see in detail as well Schackmann-Fallis et al. 2017). Drawing on the lessons learnt from the financial crisis, chapter 2 discusses the key functions banks[10] perform in an economy and reflects on whether it is possible to get a highly disintermediated financial system to work without friction. Against this background, chapter 3 works out the market structures required for banks to mediate a steady flow of borrowed capital to small and medium-sized enterprises (SMEs). More specifically, the chapter highlights the structural advantages local banks have when lending to SMEs, such as access to first-hand and nonstandard information, and to regional resources. Furthermore, local banking serves a number of sociopolitical purposes, among them the mitigation of regional disparity, the provision of a financial infrastructure in rural areas, and financial inclusion.

Chapter 4 focuses on the institutional structure of the regional constituents of Germany’s banking market and underlines that the business models of local banking and deposit-based lending are sufficiently profitable to ensure financial stability. Finally, chapter 5 looks at emerging business models powered by financial technology (fintech), their potential impact on incumbent competitors and intermediated relations, and discusses the need for regulatory actions. The article concludes by suggesting measures of economic policy that seem necessary to promote or, at least, preserve “boring banking” business models.

1 Disintermediation: Consequences of doing without traditional banking services

1.1 How disintermediation was to overcome banking risks—and failed

In the 1980s, growing concern about the risks of traditional banking, comprising interest rate risk, funding risk and default risk, sparked a global disintermediation trend that continued to the onset of the financial crisis in 2007/8. Disintermediation, in that context, refers to a shift from bank borrowing to raising funds on the securities market directly, which results in a transition toward a financial system that relies on capital markets.

In the global race for deregulation, disintermediation and banking market concentration were high on the agenda of economic policy makers.[11] Market failure such as asymmetric or incomplete information appeared to be of minor importance. Instead, markets seemed capable of regulating

10 In this article, we use the terms *bank* and *credit institution* synonymously. On their distinction in German prudential terminology, see KWG §§ 39 ff.

11 For details, see Alessandrini et al. 2016: 3, for instance: "*we have had two peaks of financial regulation, the first in the wake of the GD* [Great Depression] *of the 1930s and the second after the GFC* [Great Financial Crisis] *of 2008–2009. Between these two peaks we have experienced a long wave of deregulation that started in the 1980s and progressed in the 1990s*."

themselves. Policymakers favoured size and globality. Bringing forth national champions was considered the way to get there.[12] A traditional banking sector focused on deposit-based lending appeared to be obsolete, even harmful to financial stability.

Technically, disintermediation was enabled by the rapid advancement of information technology, global connectivity of markets and real-time data availability. From an academic viewpoint, the new disciplines of financial engineering and the art of securitization provided a mathematical and statistical foundation on which to redesign financial transactions.

In the course of disintermediation, more and more banks confined themselves to acting as brokers between clients and capital markets. While, in the customer's eye, banks continued to be lenders, in fact they were applying a business model known as "originate to distribute", hastening to sell their credit assets rather than keep them on their books as they used to. Consequently, investment banking became more important to financial institutions, as reflected on their income statements by a shift from net interest earnings to commissions.

Apart from the overarching benefits attributed to deregulation in general, disintermediation was regarded as an opportunity for lenders to increase their risk-bearing capacity by spreading risks broadly across capital markets. Those markets seemed to be preferable as sources of corporate finance, too, for being more liquid, more risk-tolerant and almost limitless in terms of quantity.[13]

1.2 Disintermediation and the crisis

As hammered home by the crisis, the core problem of disintermediation consists in adequately dealing with the associated increase in information asymmetry, and the resultant moral hazard and adverse selection. Neither balance sheets nor credit ratings turned out as readily available and reliable as would be necessary for a market-driven financial system to work in a sustainable manner.[14]

Specifically, since it was legal for issuers to securitize loans at large scale without retaining either the first-loss tranche or an adequate percentage of the exposure's value, lending solvency assessments were lax. This practice proved particularly problematic in the case of subprime or NINJA (no income, no job, no assets) lending in the United States. The failure of rating agencies to assess risks reliably, which proved them unequal to taking over the monitoring function so far performed by banks, is rooted in the rating market's fundamental structural flaws, especially its legal exemption from liability (see in detail Stuwe et al. 2012 as well as Kotz and Schäfer 2013, among others).

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12 On consolidation and concentration in the banking industry, see, for instance, White 1998, Berger et al. 1999 or Berger et al. 2000. Verdier 2002, among others, looks back on the evolution of banking systems including the influence of legislators in shaping them, and relates it to either unitary or federal forms of government.

13 On the classification of bank- versus market-based financial systems, see, for instance, Allen and Gale 2000, Demirgüç-Kunt and Levine 2001 or, critically, Hardie and Howarth 2013.

14 In the wake of the financial crisis, interest has grown in Ireland, among others, in facilitating access to financial services outside major cities for SMEs, in particular. Establishment of municipal savings banks similar to those in Germany has been discussed in a report on local public banking issued in July 2018 by the treasury and the department of rural development (see Government of Ireland 2018). Further examination has been announced.

Structures established in the course of disintermediation thus turned out ineffective in reducing information asymmetry.[15] Inadequate or omitted rating of the borrower's creditworthiness or the solidity of the investment resulted in misallocation of capital and a solvency crisis among institutional market participants. The same structures proved just as unsuited to handling the funding risk ensuing from macroeconomic maturity mismatches.

Looking at the fiscal cost of the financial crisis and the drop in aggregate production, and for fear of a protracted crunch in SME lending, legislators began to question what, if any, economic sense disintermediation was making. The traditional macroeconomic role of an intermediary banking sector, reflected in the buzzword of "boring banking", regained the favour of economic policy theorists and makers.

1.3 Credit intermediation: Reduction of information asymmetry and moral hazard

Just as transforming sizes, maturities and risks, and keeping the macroeconomic circular flow of income running, the reduction of information asymmetry is one of the banking sector's vital economic functions (For details, see Mishkin 2016, among others). Banks are in a better position to deal with information asymmetry than securities market participants or individual economic agents whenever the following conditions are met:[16]

- Local knowledge: credit institutions with a regional focus are better informed about local borrowers (see Mookherjee 2006, among others), which reduces information asymmetry ex ante and makes moral hazards ex post easier to deal with.

- Relationship banking, that is, long-standing business ties with a credit institution of first resort (referred to as "house bank" in German speaking countries). By providing first-hand knowledge of the borrower's financial situation and behaviour, such a relationship neutralizes almost any information asymmetry (see, for instance, Hodgman 1960, Boot 2000, Puri et al. 2011, Van Hoose 2010), and enables the bank to spot any sign of mismanagement or credit misuse immediately.

Another advantage of relationship banking is that the institution of choice is more likely to keep credit available in hard times.[17] A "house bank" has a large stake in helping borrowers stay solvent, capitalizing on its detailed customer insight and tapping cross-selling potential. Capital markets, by contrast, tend to respond abruptly and indiscriminately to rumours or hints of crisis as information is more asymmetric or incomplete, thus making the formation of a boom and bust cycle more likely.[18]

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15 The European property bubble which materialized, besides in Ireland, to an even greater extent in Spain, was also the outcome of flawed, politically imposed structural changes. Abolition of the regional focus of Spanish savings banks (cajas or caixas) triggered boundless expansionism and ruinous competition, which combined with insufficient knowledge of other regions led to high-risk credit assets. For details, see Gärtner and Fernandez 2018, among others.

16 For details, see Allen and Gale 2000, a fundamental work that various later studies on information asymmetry draw on.

17 On relationship banking, see Fried and Howitt 1980, Petersen and Rajan 1995, Boot 2000, Handke 2011, among others.

18 This pattern is macroeconomically significant because lending standards vary procyclically with the conjunctival cycle (see, for example, Anastasious et al. 2018). Thus, the house bank relationship counteracts the endogenous boosting boom-bust cycles.

Lastly, relationship banking ideally ties a bond of trust between an institution and its clients, which counters moral hazard on the borrowers' side. By applying their distinctive capability of reducing information asymmetry, credit institutions contribute to mitigating market failure.

2 Banking market structure: SME lending, regional disparity and social infrastructure

Lessons learnt from the financial crisis, notably from the stability of Germany's economy in spite of it, combined with political recognition of the systemic relevance of large enterprises even in the real economy sector, have improved the SME community's standing with economic policy makers on the European level, too. Legislators have become aware of the fact that small and medium-sized enterprises contribute the lion's share both to the gross value added and to employment not only in Germany but across the continent.[19] Moreover, SMEs have been instrumental in mitigating regional disparity, paving the way for economically underdeveloped regions to catch up. That is why dependable SME funding is a sociopolitical concern as well.

Raising a loan from a bank causes an SME substantially lower transaction cost than issuing a bond. Corporate borrowers are subject to less onerous disclosure requirements than bond issuers. This is particularly relevant to family businesses, most of which prefer to keep internal data to themselves. Borrowers need neither an external credit rating nor any expensive issuance support services. Loans are also the instrument of choice for raising smaller amounts.[20] Conversely, it is almost exclusively large enterprises that tap capital markets directly since they are more likely to recover the high fixed cost it involves.[21]

2.1 Local banking: First-hand, nonstandard information and regional resources

For SMEs to reap the potential benefits of credit finance, their demand must be reflected on the supply side of the market structure. The loan portfolio of a small or medium-sized bank with a regional focus differs from that of a major credit institution. The percentage of SME loans, for instance, is significantly higher on the books of smaller banks. Besides, large banks' portfolios tend to be biased against peripheral or economically underdeveloped regions. Recent literature abounds with econometric analyses that confirm and explain such observations (see Alessandrini et al. 2016 for a synopsis, as well as Bellucci et al. 2017, Zhao and Jones-Evans 2017, Lee and Brown 2017).

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19 In 2017, SMEs in the EU-28 contributed 57 percent to the aggregate real-economic value added and 66 percent to employment, see European Commission 2018: 14. For figures on Germany, see German Federal Ministry of Economic Affairs 2013, for instance.

20 From 2010 to 2015, the amounts of bonds issued by German SMEs averaged 48 million euros. By comparison, the median principal lent to corporate customers of German Sparkassen was half a million. Those figures exemplify the range of funding needs, see Hauschild and Kral 2013.

21 For an overview including minimum requirements on corporate bond issuance, see "Best Practice Guide: Entry-Standard für Unternehmensanleihen" (corporate bonds), published by Deutsche Börse in 2014 not least in response to defaults and other disruptions in the SME bond segment. On page 5, the guide recommends that prospective issuers should be generating an annual revenue of 100 million euros at least. By that standard, the majority of issuers of supposed SME bonds exceed current SME definitions.

The differences in the composition of the loan books of small versus large banks are mainly due to their organizational characteristics, which are indicative not only of the level of complexity of an institution's business but also of the geographic and social distance between loan applicants and credit decision makers (see, for instance, Radner 1993, Clark and O'Connor 1997, Stein 2002, Dessein 2002, Pollard 2003, Crémer et al. 2007, Alonso et al. 2008, Alessandrini et al. 2009, Flögel and Gärtner 2018). Those factors determine the operational, functional, sociocultural and cognitive distance between a bank and its customers.[22]

Especially when lending to tradespeople, craftspeople or farmers, soft facts are of the essence.[23] Yet such information and opinions tend to be lost on the way from the branch office to the central credit decision maker, or cannot by conveyed at all. What is more, since staff turnover is generally high in complex organizations such as large banks, local soft facts cease to be available in the long run, or employees do not feel any motivation to capture such data.[24] Staff turnover thus leads to a preference of short-term projects at the expense of local start-ups and regional economic development (see Stein 2002 or Palley 1997). Besides, gathering soft facts requires a minimum of sociocultural and cognitive affinity with the region (see Uzzi and Lancaster 2003, for instance).

Alternatively, large banks could standardize SME lending decisions based on financial ratios. But as SMEs are exempt from extended accounting requirements, and do not, as a rule, have a vast quantitative controlling system in place, that approach turns out inviable. Central credit decision makers hence have to deal with a high level of information asymmetry.[25] Last but not least, it is less costly and easier for a decentralized organization to spot and curb ex-post moral hazards in credit misuse.

Owing to the limited availability and evaluation of soft or local information, and the higher cost of punishing credit misuse, large banks hold a smaller percentage of SME loans relative to the total loan portfolio (for empirical analyses, see Cole et al. 2004, Scott 2004, Berger et al. 2005, Uchida et al. 2012, Ogura and Uchida 2014, for instance). This, in turn, goes at the expense of SME operations and regional economic development (see Bonaccorsi and Dell'Ariccia 2001, Black and Strahan 2002, Alessandrini et al. 2003: 33 ff, among others).

Similarly, in cases two medium-sized credit institutions merge or a large bank acquires a small one, the ensuing loss of local information channels will mostly result in a drop in the percentage of SME loans (see, for instance, Strahan and Weston 1998, Bonaccorsi and Gobbi 2001, Focarelli et al. 2002). The decline in the capture and usage of soft facts is chiefly due to the geographic and

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22 For a quantitative analysis of geographic concentration in the banking industry, and of operational as well as functional distance, see Flögel and Gärtner 2018: 15 ff.

23 Kay 2015: 155 ff: "*Obtaining finance for a small business has never been easy.* [...] *But as financialisation gathered pace, and the traditional bank manager retired, or was made redundant, business lending operations were removed from bank branches* [...]. *More professional analysis of business plans replaced information gained at the nineteenth hole.* [...] *But the financing of small business is not only, or primarily, a matter of judging the numbers.*"

24 See Ferri 1997, among others. Flögel and Gärtner 2018: 27, emphasize the importance of time for collecting soft information facts: "*The long time that it took to legally allow the savings banks of Spain and the UK to offer loans made them latecomers to universal banking* [...]. *Therefore, savings banks in the UK and Spain could not capitalise on soft and local informational advantages in short distance lending, which had implications for both their profitability and corporate finances.*"

25 For empirical research on decentralized decision-making in credit processing, see Liberti and Mian 2009, Benvenuti et al. 2013, Cotugno et al. 2013, Skrastins and Vig 2014, among others.

cultural distance that mergers or acquisitions put between credit decision makers and those who interact with clients (see Mian 2006, DeYoung et al. 2008, Liberti and Mian 2009, Filomeni et al. 2016, among others). Empirical data also shows that withdrawal from SME lending does not necessarily lift the profitability of merged institutions as it affects borrowers regardless of their credit standing (see Sapienza 2002, Degryse et al. 2011, Presbitero et al. 2014, among others). Since mergers increase the information asymmetry in credit relationships, the market becomes less functional, which materializes as a mismatch between supply and demand, and resultant deadweight loss (see Alessandrini et al. 2008).

Differences in the loan books of small versus large banks can also be explained as follows. In large institutions, allocation of available own funds and refinance to branch offices is driven not only by local credit demand, but also by subjective sociocultural judgements of decision makers in the headquarters. Their decisions tend to be biased against economically underdeveloped regions.[26]

Large banks whose organizational structures are marked by geographic and functional distance typically give preference to their country or region of domicile. Empirical literature has documented this home bias for the period of the financial crisis as well. Corporate clients from regions other than the bank's domicile are subject to higher interest rates, lending restrictions or even credit crunches (see, among others, Giannetti and Laeven 2011, Popov and Udell 2012, De Haas and Van Horen 2013, Gambacorta and Mistrulli 2014, Gobbi and Sette 2015). This is partly due to global or multinational banks' tendency to respond to liquidity shocks by overdraining liquid assets from peripheral markets into the region of domicile (see Cetorelli and Goldberg 2012, Berrospide et al. 2013, Dekle and Lee 2015, International Monetary Fund 2015, for instance).

2.2 Lending policy of foreign banks during the crisis

In Germany, too, both foreign branches and centralized large domestic banks displayed a home bias and resultant volatile lending during the financial crisis (Figure 1). Regional Sparkassen and cooperative banks, by contrast, kept their lending steady, which had a levelling effect.[27] Commanding a market share of 47 percent, those regional institutions are the principal lenders to businesses and self-employed persons.[28, 29]

26 See Scharfstein and Stein 2000, Landier et al. 2009, for instance. Regional savings and investment cycles, and the risk of a capital drain from peripheral markets have been discussed by Myrdal 1957 already.

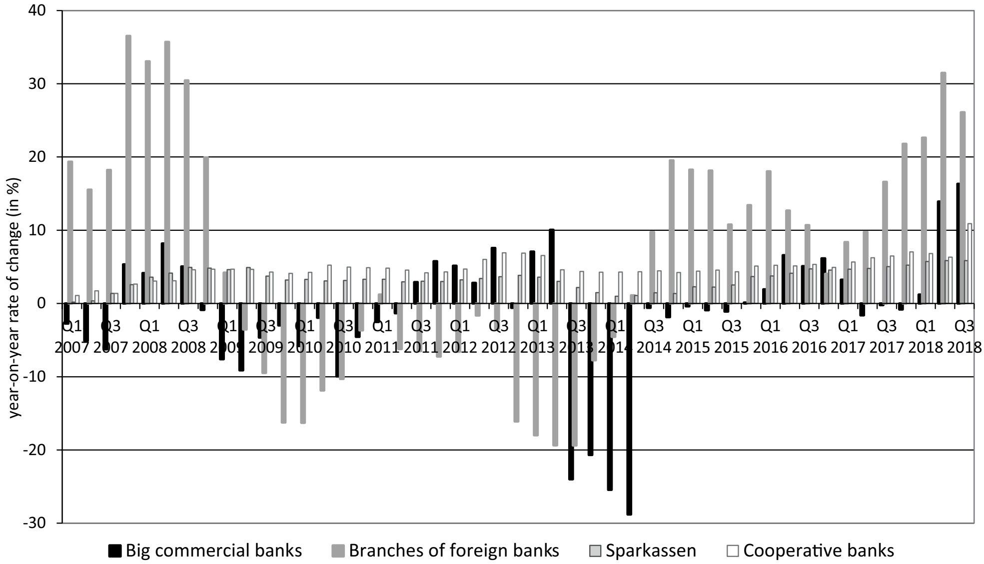
27 For details, see Gischer and Reichling 2010, among others. For an analysis of lending stability over multiple economic cycles, see Behr et al. 2017: "*We find that banks with a public mandate are 25% less cyclical than other local banks*" (ibidem: 64). Flögel and Gärtner 2018: 12: "*Germany's savings and cooperative banks account for this smoothing in lending as they increased credit volumes in the crisis. This actually leads to the uncommon observation that large companies (typically clients of larger banks) faced heavier financial constraints than smaller SMEs (typically clients of decentralised savings and cooperative banks) at the apogee of the financial crisis in Germany*."

28 In Q3 2018, lending to businesses and self-employed persons totalled 1.477 trillion euros, including 416 billion from Sparkassen and 278 billion from cooperative banks (source: Deutsche Bundesbank [banking statistics, tables I.7.a and b]).

29 A survey conducted by the Center for Financial Studies (CFS) at Goethe University Frankfurt among some 400 executives confirms the relevance of regional Sparkassen and cooperative banks to corporate finance, see CFS 2017. 62 percent of the respondents agreed that the three-pillar system of Germany's credit industry, comprising Sparkassen, cooperative and private commercial banks, had proven its worth. 43 percent saw Sparkassen as crucial for funding domestic SMEs, another 47 percent considered them important. Agreement was similar regarding cooperative banks. By contrast, only 20 percent of the respondents said that private commercial banks were crucial for SME funding.

Figure 1

Lending to domestic enterprises and self-employed persons in Germany (year-on-year rate of change of selected types of banks)



Source: Deutsche Bundesbank (banking statistics, table I.7.b), own illustration.

2.3 Local banking: reduction of regional disparity, provision of infrastructure and structure of real economy

Empirical research shows that the special lending focus of small and medium-sized banks spurs regional economic growth (see Lucchetti et al. 2001, Berger et al. 2004, Usai and Vannini 2005). Looking at economically underdeveloped regions in Germany, Hakenes et al. (2015) have found that funding from local credit institutions increases the number of new business registrations. A decentralized banking system thus helps reduce regional disparity (see Gärtner 2009, for instance), whereas a geographically centralized system endogenously stimulates the formation of highly concentrated financial clusters.[30]

Moreover, the political assessment has to take into account that, small and medium-sized regional banks perform important socioeconomic functions such as local availability, or the financial inclusion of low-income households. Their branches often become nuclei of rural or urban development, contribute to the preservation of urban infrastructure and stimulate the social interaction that such projects involve. When economic policy decisions compromise the business model of

30 Since centralized banking systems lack the means of capturing information from regional lending, they need to rely on third-party information providers and contract specialists such as credit rating agencies or law firms. This dependence promotes the formation of business clusters of credit institutions and other financial service providers, see Thrift 1994, Grote 2004, Schamp 2009, among others.

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small and medium-sized regional banks, the latter's fulfilling of socioeconomic functions, too, will be at risk.

Their unique ability to accumulate information on local credit markets makes regionally focused small or medium-sized banks vital for funding SMEs and mitigating socioeconomic disparity (see Gehrig 2011). In that sense, the structure of a country's banking market contributes greatly to achieving sociopolitical goals.[31] In particular, dynamic interdependences has to be considered: if strengthening real-sector SMEs is on the economic policy agenda, the financial system must furnish suitable, that is, bank-based, structures (for details, see Schackmann-Fallis and Weiß 2014).

3 Regional elements in Germany's banking market

Globally, Germany's banking market stands out for its variety of business models, legal forms, and the complementarity of institutions large and small. Business models with a regional focus and decentralized responsibility have been the domain of Sparkassen and cooperative banks, and, to a lesser extent, of private commercial banks.[32] Among the latter, however, large institutions operating internationally command the lion's share, accounting for 59 percent of aggregate total assets at the end of 2018.

3.1 Public-law credit institutions and the idea of a financial services network

A key constituent of Germany's banking market are public-law credit institutions such as Sparkassen with their regional focus and extensive branch networks, and DekaBank, a provider of investment funds and other capital market products for Sparkassen' customer business.[33] An additional part of the market segment under public law are the Landesbanken, which mainly engage in wholesale banking. Landesbanken also provide services that complement Sparkassen' product range for corporate clients, such as underwriting, derivatives and price hedging, large-scale or syndicated lending, or international banking.

In Germany, there are 385 Sparkassen (end of 2018), established under public law and operating under municipal trusteeship (*Trägerschaft*)[34] in their vast majority, but also including a small

31 On the underlying politico-economic debate about historical differences among equally suited, economically successful institutional arrangements, see Hall and Soskice 2001.

32 For a detailed description of the structures of the German banking market, see Schmidt and Tyrell 2004, Behr and Schmidt 2016, among others.

33 For details, see Civitas 2013, Ayadi et al. 2009: 113 to 138, Schmidt 2009, Schmidt et al. 2016, among others. For a comparison of Sparkassen with US community banks, see Gischer and Herz 2016, for instance. For a description of the structures of regional credit institutions in Europe, see Bülbül et al. 2013, among others.

34 The legal form of public-law institution (Anstalt des öffentlichen Rechts), and the concept of municipal trusteeship, as opposed to ownership, were established in the wake of the German economic crisis from 1931. Sparkassen then ceased to be dependent public utilities under direct municipal influence, which, in turn, has made it impossible for municipalities to misuse their Sparkasse for propping up their budgets.

number of so-called "freie Sparkassen".[35] Trusteeship, in that context, differs from ownership in that municipalities may not sell local Sparkasse ad libitum, nor interfere in the latter's day-to-day business. The trustee is neither liable for an institution's debts (as was the case until 2001) nor obliged to provide financial support.[36] Still, by nominating some of the members of the supervisory board (Verwaltungsrat), the municipality participates in setting the principles of the institution's business policy and oversees the work of the executive board,[37] yet without making any operational decisions.

While most Sparkassen were founded by municipalities, they basically own themselves. The name of a Sparkasse refers to the municipality where it is located, that is, a city, town or rural district. German Sparkassen focus their business on their municipality's jurisdiction, especially as regards branch location, corporate banking and, to a lesser extent, retail banking.

Legally, this so-called *regional principle* (Regionalprinzip) follows from the municipalities' legal competences under article 28(2) of Basic Law for the Federal Republic of Germany (Grundgesetz), but the regional and administrative limitation of each municipal jurisdiction. As to SME lending, the regional principle effects a close operational and functional proximity of information sources in terms both of gathering intelligence (operational) and of forwarding it to credit decision makers (functional). Besides, it is in the interest of an institution operating regionally that the local economy should thrive, because it cannot evade regionally.

Sparkassen are credit institutions under section 1(1) of German Banking Act (Kreditwesengesetz, KWG) and article 4, paragraph 1(1), of the EU Capital Requirements Regulation. As such, they are subject to German and EU prudential regulation as well as to supervision by Deutsche Bundesbank, the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht [BaFin]) and the European Central Bank (ECB). At the end of 2017, German Sparkassen held total assets of 3.1 billion euros on average, with individual figures ranging from 44 billion at Hamburger Sparkasse (Haspa) to a mere 132 million at Stadtsparkasse Bad Sachsa in Lower Saxony. Sparkassen' mainstay is retail banking, in other words, deposit-based lending to non-affluent consumers and SMEs. Capital market products and international banking can be provided via the central institutions, the DekaBank and the Landesbanken.

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35 There are five Sparkassen in Germany that are not public-law institutions. They were founded at the end of the 18th and at the beginning of the 19th century by civically engaged individuals. Though their governance structures differ from those of their public-law counterparts, those *freie Sparkassen*, too, are committed to their regions and to the common welfare.

36 As a fall-back construction the trustees (municipalities or federal states) guaranteed the debts of the Sparkassen or Landesbanken in the event of insolvency (so-called *Gewährträgerhaftung*). The rationale behind it was to pretend depositors from "bank running". Historically, the trustee's guarantee was an institutional provision to secure (savings) deposits when lending restrictions were lifted. German Sparkassen were thus able to lend to businesses and become diversified universal banks much earlier than those in other countries such as Britain (1976) or Spain (1977). To promote competition between public-law and private commercial banks, the guarantee was abolished in July 2001. The transitional period ended in July 2005, insuring liabilities by no later than the end of 2015.

37 For details, see Gischer and Spengler 2013, for instance. For an analysis of corporate governance structures in Germany's banking market, see Kotz and Schmidt 2017. In reply to the occasional criticism of the allegedly insufficient expertise of supervisory board members appointed by municipalities, Schäfer 2018 asks on page 952: "*But then, were the many supposed experts on the supervisory boards of faltering large banks able to prevent multi-billion euro bailouts? The standards of supervision do not hinge on supervisors and supervisees being birds of a feather. In fact, it can be detrimental when they are. What is crucial, though, is that supervisors be willing to ask tough questions and insist on plausible answers. Besides, local politicians, too, have access to experts whom they can consult.*"

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Constitutive of German Sparkassen is their public mandate, also referred to as double bottom line or dual purpose (see Schmidt 2009 or Brämer et al. 2010), which implies a basic commitment to the common good. Sparkassen are expected to make a profit, but not to maximize it. More specifically, they are mandated to grant low-income households access to financial services, to promote private savings and financial literacy, to maintain an extensive branch network that covers rural regions as well and, above all, to keep lending to regional businesses[38], credit ratings permitting.[39] Furthermore, Sparkassen have been sponsoring social projects, the arts and sports in their regions of domicile.

Sparkassen are thus an integral part of Germany's public services infrastructure. By choosing to have them operate under public law and municipal linkage,[40] legislators refrained both from immediate public ownership or public-sector production and from delegating production to private businesses, which would involve drafting complex contracts to align the latter's strategies with political objectives.[41]

German Sparkassen are allied with Landesbanken and DekaBank in the Sparkassen-Finanzgruppe (Finance Group).[42] Unlike its official name suggests, it is not a unified corporate group (Konzern) but a network of autonomous credit institutions and insurance companies. Such a financial services network is a specific form of interbank cooperation. It differs from a corporate group in being a bottom-up organization, with members remaining legally and financially self-reliant. They cooperate, however, in several aspects and have set up a joint institutional protection scheme (IPS) under article 113(7) CRR.[43] Regional Sparkassen associations and the DSGV as their national umbrella organization coordinate cooperation within the network, but do not have any formal authority.

Cooperation within the network includes sharing a common logo and brand as well as conjointly IT systems and back office services to comply with prudential requirements, for instance. Products not sold by Sparkassen themselves are provided by the head institutions. Financial products

38 Brei and Schclarek 2013 confirm in an international setting that credit institutions with a public mandate, especially in times of crisis, have stable lending, while the lending behavior of private credit institutions is highly cyclical.

39 As banks under public law, Sparkassen can be seen as a specific institutional arrangement of strategic coordination in a coordinated market economy as described in Hall and Soskice 2001. Due to its close market proximity and stable market presence, such an arrangement helps economic agents to share information and commit to each other credibly even when contracts are incomplete. More recently, the concept of regional credit institutions, which is rooted in institutional economics, and the historical sociopolitical idea of Sparkassen and cooperative banks have reappeared in the economics of development finance as microfinance and inclusive banking (for details, see Schmidt et al. 2016 as well as Schmidt 2018).

40 Legislators were thus abiding by the views of Georg Friedrich Hegel, Max Weber and the historical school of economics, who saw a democratically controlled bureaucracy acting in an organized, rational manner as a suitable institutional arrangement for creating mechanisms that would ensure an adequate supply of goods and services of public interest. For more on this subject, see Sekera 2016.

41 Given its lower capital, contract and coordination costs, public production makes sense in providing goods and services of general public interest, especially as there is no a priori reason to assume that government involvement in the production of such goods or services should per se be inefficient, see Hall and Nguyen 2018. On the fundamental debate about government intervention when markets fail, in the production of goods and in meeting demand, see De Grauwe 2017, Raworth 2017, Sekera 2018 and Wedel 2018, among others.

42 In Germany, systems of voluntary cooperation among autonomous businesses exist outside the banking industry as well, for instance in retail trade.

43 The option of entering into an IPS under article 113(7) CRR is available to credit institutions of any legal form including private sector banks. In Germany, cooperative banks have formed another financial services network and protection scheme, the Genossenschaftliche FinanzGruppe Volksbanken Raiffeisenbanken.

and services which are not produced by Sparkassen themselves are complementary provided by the central institutions. Sparkassen associations and central institutions also ensure the regional banks' operational and informational connection to financial centres and capital markets.

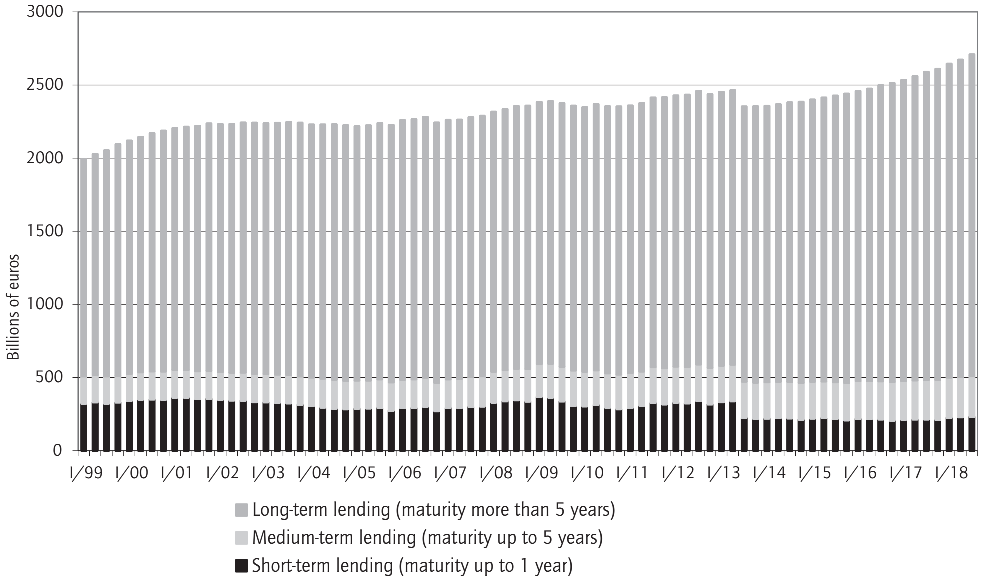
The idea behind a financial services network is to benefit from centralization without giving up the advantages of a decentralized organization. Networking enables credit institutions to tap synergies in areas such as IT, brand building and maintenance, development of bank management tools or financial products, while preserving their decentralized decision-making powers. This is particularly important in lending to SMEs and self-employed persons, where customer focus combines with local presence, knowledge and decision-making powers to produce stable credit supply and sustainable credit decisions.

3.2 Preference of long-term borrowing

Credit institutions have always been the mainstay of Germany's financial system, even though their GDP share is below international average. The ratio of lending to real-sector businesses divided by corporate bonds in circulation was 4.7 (3rd quarter 2018), considerably higher than in Britain or the United States (see Schackmann-Fallis and Weiß 2014, for instance). In other words, German businesses heavily rely on banks for funding by international comparison as well.

Figure 2

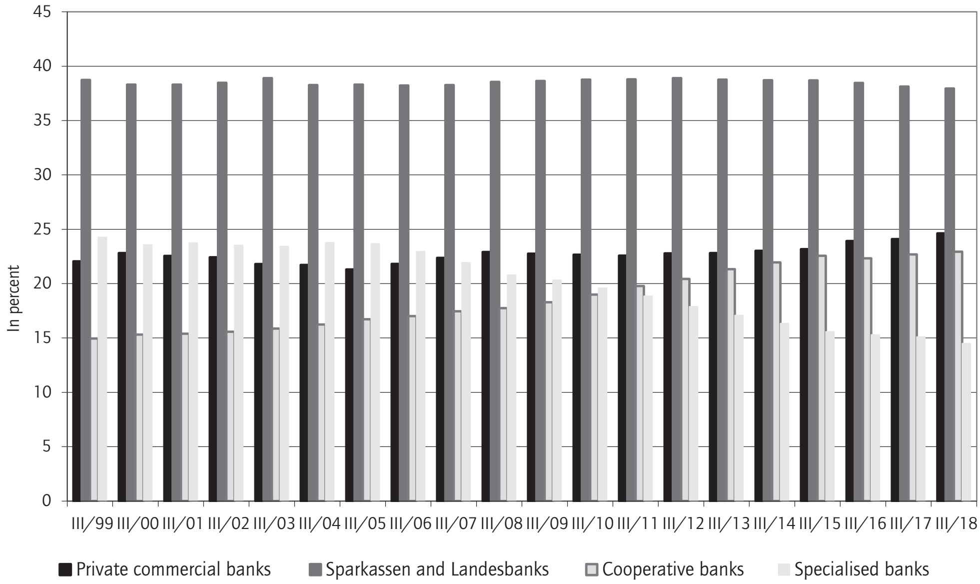
Lending to domestic enterprises and private households in Germany by maturity



Source: Deutsche Bundesbank (banking statistics database: lending by MFIs in Germany to domestic enterprises and households), own illustration.

Figure 3

Long-term lending (maturity more than five years) to domestic enterprises and private households in Germany; shares of selected types of banks



Source: Deutsche Bundesbank (banking statistics database: lending by MFIs in Germany to domestic enterprises and households); own illustration.

The minor importance of capital market funding in Germany has two reasons. First, the vast prevalence of SMEs and the fact that regarding for those enterprises bank borrowing incurs lower transaction cost than using capital market instruments. Second, the ubiquity of credit institutions with a regional focus, which is conducive to stable banking relationships (see Behr et al. 2013 as well). As a result, there is little need to resort to other sources of debt capital.

Typical of Germany's credit market is borrowers' strong preference for long-term loans. At 78 percent on average from 1999 to 2018, loans running for over five years have been prevailing, with rising tendency. At the end of 2018, 81 percent of outstanding loans to domestic enterprises and private households, totalling 2.708 trillion euros, had a maturity of more than five years (Figure 2).

At 38 percent, Sparkassen and Landesbanken account for the largest share of long-term loans (Figure 3). Also visible is the growing exposure of cooperative banks to long-term lending. Their share in that market segment rose from 15 percent in the first quarter of 1999 to 23 in the first quarter of 2018.[44]

44 The very long maturities of German Sparkassen' and cooperative banks' lendings are a consequence of their regional focus, deposit-based funding and specific governance models. Regional focus, in turn, is either based on the regional principle laid down in the federal states' legislation on Sparkassen or, regarding cooperative banks, mandated by their members. Those institutions' long-term lending to domestic enterprises and private households accounted for 56 percent of total assets or 55 percent respectively; at private commercial and

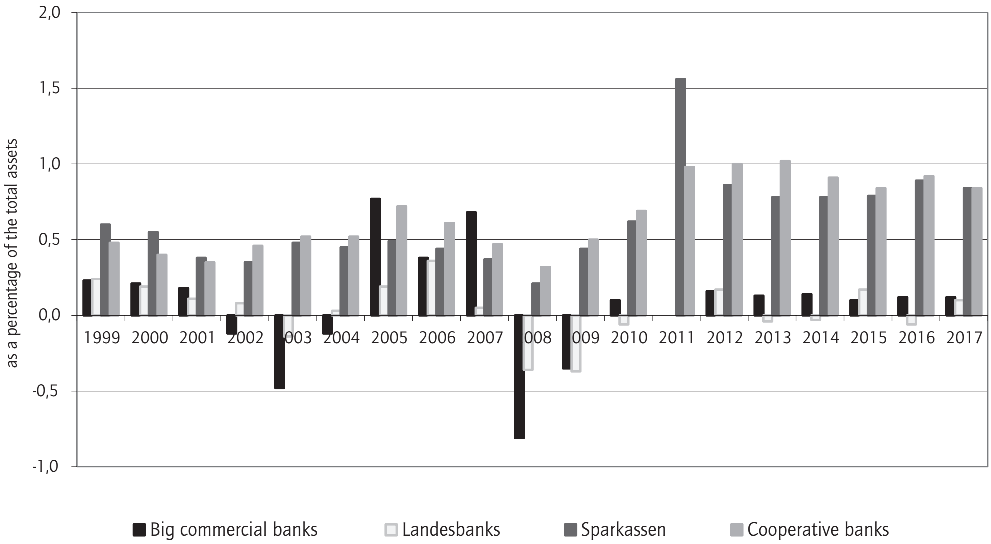
In particular, to SMEs, mostly having only a limited number of business areas, long credit maturities and fixed interest rates are advantageous because they make financial planning easier and more reliable. The banking sector, conversely, is heavily involved in maturity transformation. Supervisory authorities therefore need to keep tabs on funding and interest rate risks.

3.3 Profitability of “boring” business models

As regards Germany, empirical research rebuts the occasional doubts raised in the early literature (Verdier 2002, for instance) as to whether regional credit institutions operating in peripheral markets can be sufficiently profitable (for regional studies, see Christians 2010 as well as Christians and Gärtner 2014, among others) (Figure 4). If anything, the regional principle is a key factor of success because it makes for strong customer relationships and minimizes information asymmetry.

Figure 4

Profit or loss for the financial year before tax; selected banking market segments in Germany



Source: Deutsche Bundesbank, “The performance of German credit institutions“, Monthly Report September (multiple years), own illustration.

large banks, by contrast, that ratio is only 17 percent (September 2018, source: Deutsche Bundesbank, banking statistics database [lending by MFIs in Germany to domestic enterprises and households]). Sparkassen and cooperative banks, and their interconnection as networks rather than corporate groups, thus form a vital institutional arrangement that provides long-term finance as quasi-public good.

By adopting a policy of negative interest rates, the ECB has been accelerating the projected tendency for banks' net interest income to decline in a global low-interest-rate environment. Monetary policy itself has thus become a risk to the stability of the banking system (for details on this debate, see International Monetary Fund 2016 or Deutsche Bundesbank 2015, for instance). It has also been compromising the earnings potentials of classic business models focused on deposit-based lending, forcing banks to expand their commission and fee-earning business, or resort to negative deposit rates to maintain their interest margins.

However, economic policy makers would be ill-advised to push for a general shift toward fee and commission revenue, as the International Monetary Fund (IMF) and others have long since been advocating. While such a shift would, indeed, make earnings less contingent on maturity transformation and less susceptible to zero-interest monetary policies, we must take into account that fees and commissions, too, are subject to subsequent imponderables such as legal risks.

Moreover, given the moral hazard inherent in pure selling, pushing fees and commissions across the industry seems unwise. If it succeeds, banks will be less involved in size, maturity and risk transformation. But since that function is vital to the economy, it would inevitably be assumed by providers less experienced therein than banks. Incidentally, the IMF's country-specific advice also reflects differences in basic attitudes toward finance. The continental system has always been bank-based. Banks are intermediaries proper that take risks and generate income from interest margins. The IMF's approach, by contrast, is geared more toward capital markets.

4 Fintechs: Business strategies and the need for regulatory action

The emergence of innovative ICT-driven financial products has been almost as disruptive as the disintermediation of depositor and borrower relations through securitization and capital market orientation. Fintech products are challenging the business models of conventional intermediation. Prime examples are brokerage or crowd platforms featuring standardized query capabilities. But as the latter fail to provide soft facts, they reinforce information asymmetries rather than mitigate them. Other fintech instruments such as cryptocurrencies were expressly designed to bypass the traditional intermediation and monetary system.

4.1 Fintechs and digitalization in the financial market

The term *fintech* mostly refers to start-up companies that target technophile consumers with products based on state-of-the-art information technology or algorithms.[45] Such businesses typically act as highly specialised intermediaries catering to niche markets.

Fintechs pick individual lines of business rather than offer the gamut of services that incumbent credit institutions provide. This trend is also known as *unbundling* of banks. By interfacing with third parties, though, fintechs manage to establish a market presence notwithstanding their fragmented production chains. Their lines of business essentially comprise the following five:

45 See Financial Stability Board (FSB) 2017: 7: "*Fintech is defined as technology-enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on the provision of financial services.*"

- *Payment solutions* such as mobile or instant payment, payment initiation services, account information services or cryptocurrency exchanges.

- Fintech business models include the replacement of classic forms of funding, notably bank loans, by recruiting large numbers of capital suppliers among the "crowd" of web users. *Crowdfunding* variants—crowd-investing, crowd-lending und crowd-funding—range from crowd equity and debt capital lending through preselling a product to collecting donations. Since none of them matches classic intermediation between depositors and borrowers, crowdlenders run a high risk of losing their money.

- *Crowd platforms* do not perform the basic macroeconomic function of maturity and risk transformation. By applying credit scoring methods that consider data from multiple public sources, for instance, some platform providers help capital raisers and potential funders reduce the information asymmetry between them. But unless providers are held liable for the scores they issue or have a skin in the game via participation in lending, it remains doubtful whether such methods are incentive-compatible and thus reliable. Nor do providers monitor how the funds raised on their platforms are used.

- Use of *robo-advisers* to automate sales of investment and asset management services.

- A number of platforms engage in *loan, deposit and insurance brokerage*.

- *Cryptocurrencies* have declared their intentions to replace entire monetary systems including payments and deposits.

4.2 Impact on incumbent competitors and intermediation ties

Focusing on just one or two of the lines of business typically bundled in a credit institution enables fintechs to offer highly specialised products which have been attracting more attention than those of incumbent competitors. Unlike the latter, many fintechs aim for rapid expansion across Europe. By standardizing their business processes and generating economies of scale, they expect to make sufficient profit even from minimal margins.

Splitting off any of the lines of business so far bundled in one institution exposes the latter to the risk of their customers turning away from habitual one-stop finance to sourcing stand-alone services from a multitude of specialised providers. Unbundling also results in a loss of information synergy. Besides, standardized and automated processing does not lend itself to capturing soft facts. Consequently, information asymmetry is likely to grow alongside the fintech industry. While in personal banking that asymmetry can be offset by big data analysis, in working with SME clients it probably cannot.

In the medium term and comparable to the so-called new economy around the turn of the millennium, it is to be assumed that fintech market and fintech business ideas will shake out. In that process and regarding market structure, some fintech protagonists are likely to grow or merge into larger technology providers (bigtechs), or be swallowed by conventional banks or insurance companies. The market will be characterised by bigtechs with standardised processes on the one hand and genuine financial intermediaries using soft information factors on the other hand.

In view of all that, incumbent credit institutions, notably regional banks, should identify and nurture competitive advantages like their geographic proximity to customers. Where those advantages turn out insufficient, banks ought to cooperate with specialists. In addition, they should consider offering services that complement their core business, such as identity verification, capitalizing on the fact that consumers are more inclined to trust a credit institution than to rely on an online platform. Especially the latter's inability to provide soft facts continues to hold market potential that traditional credit institutions can tap.

Disruptive technological innovations, notably distributed ledgers as typified by blockchains, must be assessed separately from the multitude of current fintech solutions. Because such innovations are applicable to a plethora of purposes beyond the financial sector.

4.3 Prudential treatment of fintechs

The debate on what would be an adequate regulatory treatment of fintechs and their products has just begun (See, for instance, European Banking Authority (EBA) 2014, 2015 and 2017, FSB 2017, Basel Committee on Banking Supervision 2018). Priorities for action include the following:

Adherence to the principle of same risk, same rules

For the sake of fair competition, consumer protection and financial stability it is imperative that fintechs and incumbent financial institutions are regulated by the same standards without exception. Hence neither a so-called regulatory sandboxes nor dedicated soft fintech laws are the way to go. To prevent regulatory arbitrage in chartering a fintech, EU-wide harmonization of the licensing and registration requirements is of the essence.

Crowdfunding: Questionable leapfrog strategy

Crowdfunding and its varieties involve a series of critical regulatory issues. Lending platforms have assumed the intermediary role of credit institutions, matching capital in search of investment with the needs of loan applicants. But this happens outside the insured or regulated relations between depositors and lenders, or investors and issuers, respectively.

Crowdplatforms have been capitalizing on generous exemptions from prospectus requirements. Their business model thus reveals a wide gap in investor protection and clearly serves to circumvent the legal provisions applicable to deposit banking, credit lending and the issuance of capital market products. Moreover, capital raised on a crowdfunding platform is mostly junior, which translates into high losses for funders when users become insolvent. In addition, information available on such platforms is often insufficient.

Moreover, Germany's aggregate crowdfinancing volume has been negligible, at less than 150 million euros in 2016, including 77 million in lending, as well as 37 million investments in real estate projects and 16 million equity investments in start-ups (source: Für-Gründer.de 2017). Those numbers and the average principal of 17,254 euros per project (ibidem) are indicative of the impossibility to rely on the crowd for stable SME finance. At best, some forms of crowdfunding can serve start-ups, in particular, to bridge minor financial gaps.

Need for transparency in brokering processes/information privacy/addressing cyber risks

When fintechs act as brokers, they must be required to make that known to potential customers. They must avoid any impression of being credit institutions, lest they or their products illicitly capitalize on the faith that customers tend to have in the highly regulated financial services market. Supervisors ought to keep such grey areas under surveillance, send cease-and-desist letters to offenders, and bill them directly for any administrative cost thus incurred. Any regulated institution that has a stake in a brokerage platform must be identifiable at first glance.

Whatever their lines of business, most fintechs heavily rely on customer information processing and analyses. This makes data protection particularly challenging regarding fintech business models. Supervision of their compliance with information privacy laws is hence of utmost importance. Users' need for information security and privacy must be met without reserve.

Last but not least, cyber risk, too, is on the rise. To preserve the fragile bond of trust with their customers, fintechs and credit institutions must ensure a high level of protection from cybercrime, which is going to require increasing investment. But while IT security remains, first and foremost, a responsibility for the financial industry itself to meet, it also concerns public infrastructure, making it urgent for governments, too, to devote more attention and resources to it.

In-depth analysis of risks to financial stability

New lines of business entail new risks. Since analysis of threats to financial stability arising from fintech business models and products has been insufficient, it would be desirable for macroprudential supervisory authorities to study such risks in depth to complement regular microprudential surveillance.

Exemption from fees distorts competition

Prudential supervision of the fintech market, and the risks to financial stability and investor protection emanating from that industry, should be exercised both at the European and at national levels. On the EU level, EBA, ESMA and, macroprudentially, the European Systemic Risk Board (ESRB) would be in charge. In Germany, the fintech industry should be supervised by the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht [BaFin]) and, macroprudentially, by the Financial Stability Committee (Ausschuss für Finanzstabilität [AFS]).

Since only incumbent market players have been subject to prudential supervision and pertinent fees so far, the administrative cost of monitoring the fintech industry would be borne by them. However, exempting fintechs from contributing to the fee-based funding of regulatory and supervisory agencies distorts the competition. Hence fintechs must not only appear on the regulatory radar but also pay their fair share of their supervisors' operating budget.

Cryptocurrencies: Prone to laundering, speculative and bad for the economy

With an eye to consumer protection, digital currencies are highly speculative. They are also problematic in that they are not covered by current legislation on the prevention of using of the financial system for the purposes of money laundering or terrorist financing. On top of that, their taxability is anything but clear.

The vast use of digital currencies as medium of exchange is nowhere to be seen. Their high volatility makes them unsuitable as means of payment. Neither to be neglected are the resources required, and the pollution caused, to generate the electricity needed to mine additional cryptocurrency units.

Moreover, digital currencies are inappropriate to keep price level stable. Founders have capped the number of currency units that can be mined. Once the limit has been reached, deflation will rise as the economy grows. Additionally, absent any central governing body to control them, cryptocurrencies are unamenable to monetary policy, permitting neither any countercyclical measures to stabilize the economy nor any intervention as lender of last resort in the event of a liquidity crunch in the financial sector. In summary, it can be stated that from economic point of view, cryptocurrencies are neither able to replace traditional currencies and monetary systems nor would it be preferable.[46]

5 Conclusion and economic policy implications

Strengthening regional SMEs is a core concern of German and European economic policy. Its agenda ranges from easing the bureaucratic burden, through issues of taxation, social security contributions and the risk tolerance of society as a whole, to the stability of financing facilities and hence bank regulation.

In continental Europe, credit institutions have always been a primary source of corporate finance. To the benefit of both sides, this tradition has resulted in long-term business ties which have been providing banks with deep customer insight enabling them to understand a client's credit risk better than anyone else. Since credit agreements and bond indentures are incomplete contracts of limited enforceability, the wealth of information from relationship banking gives lending institutions an edge over capital markets not only in credit rating but also in usage monitoring and, if need be, renegotiation.

For SMEs, in particular, there are two more reasons to prefer bank loans to capital market-based funding: transaction cost and corporate governance. Market-based financing involves publication and rating costs, and forces the board, which in most SMEs comprises members of the owning family, to focus on shareholder value and cede a substantial measure of control. Given the prevalence of SMEs in Germany's economy, stable credit institutions providing competitive corporate lending and banking services are vital for the country's prosperity.

Institutions whose business models are based on deposit banking and decentralized decision-making have proven to be particularly loyal lenders, not least because they draw on stable funding themselves. The geographic proximity to their borrowers provides regional institutions with the above mentioned wealth of soft facts that enable them to rate their clients' credit better and for longer terms. The possible disadvantage of small and regional credit institutions of not achieving economies of scale and of not offering a broad range of financial services and products can

46 EBA has recommended specific legislative measures concerning cryptoassets and demanded the European Commission for acting (see European Banking Authority 2019 in detail).

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be overcome by cooperation within a financial services network. Key features of a functional regionally focussed and decentralized banking system include: "*I. Short distance and embeddedness in (supportive) regional bank associations* [...] *II. Real decentralised universal banks* [...] *III. Regional principle, regional embeddedness and regional balance*".[47]

Yet despite its many merits, the business model of deposit-based lending is under threat, or has at least been complicated, by certain aspects of economic policy, such as undifferentiated regulation or central banks' prolonged zero-interest policy.

The current regulatory framework puts small and medium-sized banks at a competitive disadvantage. On the one hand, implicit government guarantees are still helping TBTF-institutions to refinance themselves at better terms, which they can pass on to their customers. On the other hand, since regulatory costs are mainly fixed administrative expenses, the price that small and medium-sized institutions pay for the current one-size-fits-all approach to regulation is out of proportion.[48] Banks solid enough to weather the crisis might now turn out too small to survive regulation. The asymmetric impact of the cost of post-crisis re-regulation forces smaller institutions to merge, which increases distances in customer relationships. That, in turn, goes at the expense of SMEs and peripheral or economically underdeveloped regions.

Other existing threats to the "boring banking" business model as well as to stability in SME lending arise from gathering quantitative requirements on loan origination and increasingly burdensome regulatory reporting obligations. The growing dominance of an approach to supervision that looks at financial ratios, above all, dismisses the soft facts which are so decisive in SME lending. Moreover, that quantitative approach gives supervisors a false sense of security, blinding them to new risk factors, and tempts supervised institutions to come up with workarounds that make even dubious business practices formally compliant with regulatory thresholds. What would make more sense, then, is a qualitative, subtle supervision that only intervenes when necessary, as laid down under the second pillar of Basel II.

In addition, regulation has become a central element of strategic and operational business decisions, making the business behaviour of credit institutions much more homogeneous and thus making the overall financial system more prone to macroprudential shock (see Schumacher et al. 2019).

On the whole, the European Union's regulatory framework has so far turned out ineffective in fostering heterogeneous and small-scale market structures and in fostering business models of deposit-based lending. In other words, regulators have been counteracting the legislative goal of cutting the proliferation of financial business models back to boring banking across the board.

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47 Flögel and Gärtner 2018: 21 ff. Moreover, Flögel and Gärtner 2018: 27, argue that there is no need for protecting regional credit institutions from competition but a need for political support of the principles of regionalism and interbank networking: "[...] *governments do indeed matter, but less so in preventing centralised banks from wiping decentralised banks off the market with overwhelming competiveness. Rather, governments matter to protect decentralised banks from damaging their own factors of success by restricting them to their regional markets. In Spain, the abolishment of the regional principle tended to initiate the end of savings banks*". Likewise, see Schmidt et al. 2016.

48 See Alessandrini et al. 2016: 5, for instance: "*The uniformity of regulation penalizes local banks relative to larger banks because the implementation of complex regulation is to a large extent a fixed cost.*" Likewise, see Koch (2013), Hackethal and Inderst (2015), Schackmann-Fallis et al. 2016, Lange and Paul 2017, Schumacher et al. 2019. For an estimate of additional regulatory costs incurred by US community banks, see Feldman et al. 2013 and Ash et al. 2015, among others.

The good news is that CRR II is to differentiate regulatory requirements in favour of small and non-complex institutions somewhat more than its predecessor (For details on differentiation in US bank regulation, see Hoskins and Labonte 2015). Easing the burden of reporting and disclosure, in particular, concerns institutions with total assets under 5 billion euros and along several criteria for being non-complex (article 4(114a) CRR II). In doing so, Europe is following the US-led path of differentiating bank regulation (see Schackmann-Fallis et al. 2016 and Loeper 2017 for the concept of a so-called small and simple banking box).

The problem with absolute thresholds, however, is that they are eroded by inflation, and disregard the differences in size among national economies. A more balanced choice would have been a relative threshold, such as assets totalling up to one percent of the GDP of a bank's domicile, along with classification pursuant to supervisory criteria for identifying systemic importance. Still, the threshold under consideration is a step in the right direction and should be applied consistently in the technical standards and guidelines to be adopted by EBA.

Besides the regulatory framework, the other determinant of the future of boring banking are market trends. Europe and Germany are turning into a digital economy. This evolution is taking place in all sectors and affects all parts of society. Financial technology specialists, or fintechs for short, are disrupting the market by launching financial innovations and outsourcing the value chain. Incumbent institutions must compete with fintechs' ideas and be receptive to their solutions, enabling technical progress to reach the entire market. All things considered, products and processes developed by fintechs are more likely to complement than to replace conventional banking transactions and financial services.

Bank loans have long had to stand their ground against financial innovations and fashions. After the rise and fall of SME bonds (see Mausbach and Simmert 2016, among others), crowdfunding and its varieties have become the latest hype. Technically it resembles bond financing, although crowdassets are not fungible. Making the savings of others accessible to prospective borrowers on an online platform is subject to a high level of information asymmetry since traditional sources of information such as customer relationships or extensive disclosure requirements are unavailable. Nor is there any opportunity to renegotiate.

Although fintech products have been pushing innovation across the economy, they must be appraised as critically as conventional banking in terms both of financial stability and of investor protection. Subsuming financial innovations launched by fintechs under the current prudential regime based on a qualitative comparison of their features is the right approach in that it prevents market distortion resulting from regulatory arbitrage. Should this subsumption fail, however, the introduction of specific regimes to regulate crowd platforms, investment brokerage platforms and cryptocurrencies will be inevitable.

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