The Banking Systems of Germany, the UK and Spain from a Spatial Perspective: The German Case

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Summary

A comparison of the German banking system with that of the United Kingdom (UK) and Spain shows Germany to be decentralised not only regarding the distribution of banks, but also its financial and political system more generally. Decentralised banks, which are predominantly regional savings banks and cooperative banks in Germany, nearly account for most lending to business and have extended lending at the expense of centralised banks (such as the four big banks, for example). Federalism and strong redistribution mechanisms between the regions support decentralised banking in Germany. Furthermore, close cooperation in their banking groups is shown to allow decentralised banks to realise economies of scale and develop superior techniques for retail banking, like bank-ICT and rating systems. The detailed comparison of a savings bank with a big bank suggests that shorter (functional) distances allow regional banks to consider soft information easily and reliably when lending to SMEs. Short-distance lending not only reduces the financial constraints of (financially distressed) SMEs, but can also be profitable for banks as they are able to realise higher interest earnings in business with informationally opaque enterprises. However, decentralised banking is also under threat in Germany due to tightening (more complex) banking regulations and the continuing low interest rate environment. Therefore, decentralised banks need to cut costs, which is why they have merged to larger units and closed branches in recent years. Furthermore, they have tried to increase fee earnings at the risk of disintermediation. This paper identifies two dilemmas of these cost-cutting strategies. First, disintermediation challenges regional savings-investment cycles and thus regional independency. Second, mergers, branch closures and the standardisation of processes endanger local decision-making authority and hence short-distance lending. As the detailed comparison make clear, the ability of regional banks to decide on credit at a short distance enables profitable lending to informationally opaque SMEs, meaning SMEs that appear to be very risky on the basis of hard information, by utilising soft information. Accordingly, short distance tends to be a key competitive advantage of regional banks, especially in a low interest rate environment. Cost-cutting measures must be conducted with full awareness of this advantage. With respect to lending to SMEs, branch closures may be less critical than mergers and standardisation because most branches are not involved in lending to SMEs anyway.

Keywords: comparing banking systems, SME finance in Germany, savings and cooperative banks, decentralised vs. centralised banking

JEL classification: D43, E21, G01, G21, G38, R12

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A Introduction

Despite the initiatives to create a common European financial market, the banking systems of the European states vary, especially with respect to the spatial concentration of banks and other financial institutions (Klagge and Martin, 2005; Gärtner and Flögel, 2014; Wójcik and MacDonald-Korth, 2015). Map 1 shows substantial differences in the spatial allocation of bank headquarters for the Euro countries in 2014 and the UK in 2017. Austria, Germany, Ireland, Italy and the Netherlands have a rather decentralised allocation of headquarters. In contrast, France, Spain, Belgium and the UK are viewed as quite centralised in terms of bank headquarters. The existence or non-existence of regional banks tends to explain the visual difference between the European states that is apparent in Map 1. This paper investigates diversity between the national banking systems of Europe from a spatial perspective by looking at decentralised and centralised banking (Gärtner and Flögel, 2014; 2017a). It is one of three papers of a research project sponsored by the Hans-Böckler Foundation that compares Germany, the UK (Flögel and Gärtner, 2018a) and Spain (Gärtner and Fernandez, 2018). Below, the development of the German banking system is discussed and compared with the systems in Spain and the UK. This report focuses on the processes that regional savings banks and large banks use to lend to businesses. The remainder of the introduction outlines the conceptual and methodological foundations of the research project.

Map 1: Bank headquarters locations in the Euro countries in 2014 and the UK in 2017
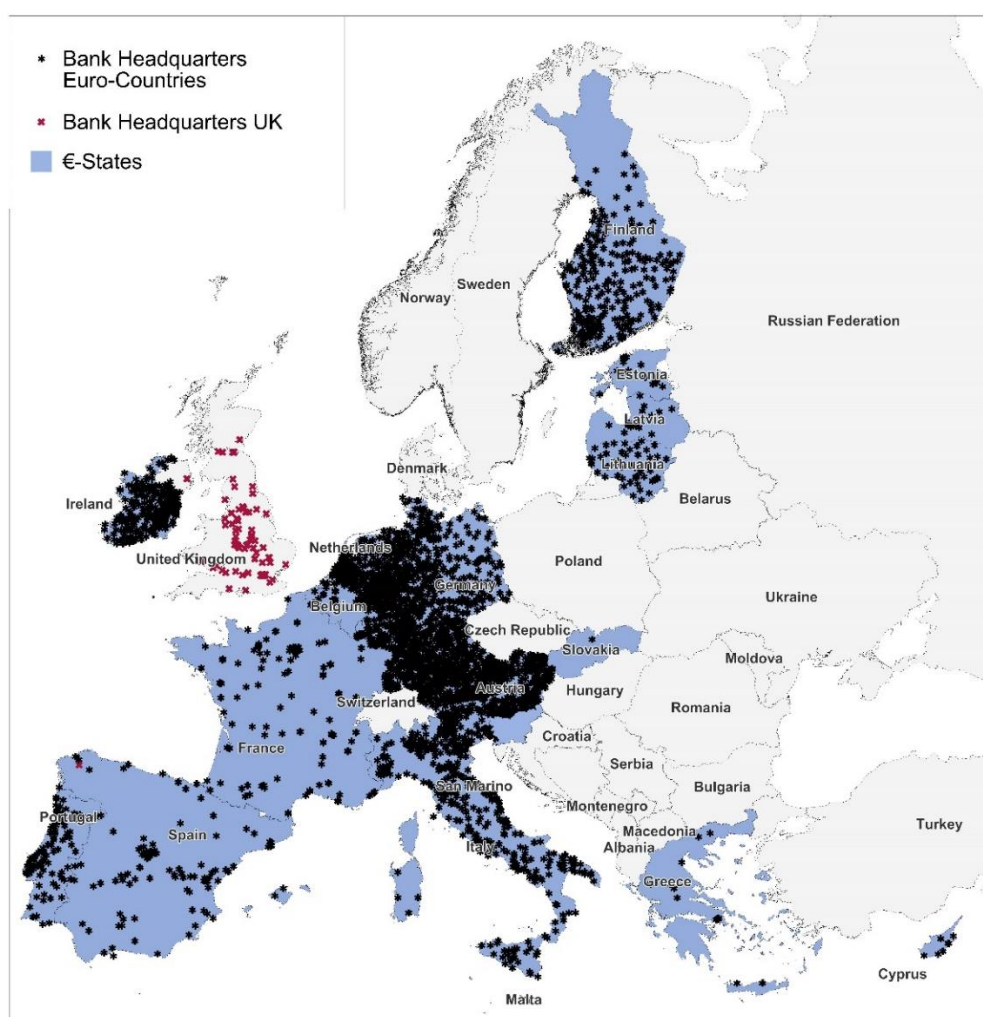
Authors' map, source: ECB (2014), Bank of England (2017)

The diversity of banking and financial systems is apparent when we look under the surface. Traditionally, the structure of financial systems is approached by distinguishing between bank- and market-based systems (Allen and Gale, 2001; Demirgüc-Kunt and Levine, 2001; Hall and Soskice, 2001). However, misgivings about the suitability of this classification have emerged since the financial crisis of 2008 (Beyer, 2009; Hardie et al., 2013). There is a whole range of alternative taxonomies and concepts for distinguishing between financial systems (for an overview see Gärtner, 2013a). For example, Gowan (2009) outlines differences among public utility versus capitalist credit and banking systems. Differentiations between Islamic and non-Islamic financial systems are also discussed, linked to the question of whether or not generating interest income should be allowed (Pollard and Samer, 2007). Hardie and Howarth's classification (2013a) examines differences in banks' lending practices in relation to their dependency on capital markets. The authors distinguish traditional banking from market-based banking and emphasise that under the market-based banking model, banks' lending decisions actually depend on capital markets. Whilst appreciating these approaches, we see one additional distinctive feature of financial and banking systems: their spatial arrangements, relating to the importance of decentralised banking compared to centralised banking.

As early as 1995, Klagge argued in favour of a classification of banking systems into decentralised and centralised systems (Klagge, 1995), so our approach picks up an ongoing debate (Verdier, 2002; Klagge and Martin, 2005; Gärtner, 2011; Gärtner and Flögel, 2013; 2017a; Klagge et al., 2017). In our view, two important and related characteristics define decentralised versus centralised banking and banking systems (Gärtner and Flögel, 2014).

The first is the *geographical market orientation* of banks' business activities. Do banks operate on a regional level, such as by collecting money from regional savers and handing it to regional borrowers, or do they rely on business at the supraregional scale, whether by borrowing and investing in national or global capital markets or by operating supraregional branch systems (regional vs. supraregional banks)? The theoretical foundations here lie in polarisation and post-Keynesian theories on regional banking markets and interregional flows of capital (Chick and Dow, 1988; Dow and Rodríguez-Fuentes, 1997; Klagge and Martin, 2005; Gärtner, 2008). In particular, the ability of regional banks to slow capital drains from the periphery to core regions, which is heatedly debated, suggests that regional banking may make a difference when it comes to access to finance in peripheral regions and, hence, stimulate more balanced regional development (Gärtner, 2008).

The second characteristic is the *place of decision-making.* Do banks decide in proximity to their clients (such as whether to grant a loan) or are decisions made from a long distance, for example in remote head-quarters (short vs. long distance)? Decentralised banking capitalises on proximity between creditors and borrowers in order to conduct investment or lending decisions. From a theoretical point of view, lending at proximity to borrowers is associated with reduced information asymmetries and reduces credit rationing, especially when lending to small- and medium-sized enterprises (SMEs) (Stein, 2002; Pollard, 2003; Berger et al., 2005; Gärtner, 2009a; Alessandrini et al., 2009b; Flögel, 2018a). The relevance of difficult-to-transmit so-called soft information in lending to informationally opaque SMEs restrains decision-making at a distance, such as in financial centres, and favours a decentralised banking system in which banks' head offices and decision makers are located in proximity to their clients. In contrast, centralised systems capitalise on proximity between the financial institutions themselves in order to facilitate financial innovation and organise and control investment decisions indirectly. As a consequence, financial institutions need geographical proximity to other banks, rating agencies, lawyers, regulatory bodies and other actors, which explains the rise of financial centres (Friedmann and Wolff, 1982; Friedmann, 1986; Sassen, 2001; Taylor et al., 2003; Lo, 2003; Grote, 2004; König et al., 2007; Hall and Appleyard, 2009; Schamp, 2009; Therborn, 2011; Gärtner, 2013b; Dörry, 2015).

Against this conceptual background, the core element of this research project is to compare decentralised and centralised banking in the three European countries of Germany, Spain and the UK. In line with the Varieties of Capitalism (VoC) research tradition (Hall and Soskice, 2001; Schmidt and Tyrell, 2004; Hackethal et al., 2006; Dixon, 2012), our research questions are twofold. On the one hand, we raise the question of how decentralised and centralised banking systems influence access to finance, especially for

SMEs, and thus influence regional development, meaning how financial intermediaries could contribute to balanced regional development. On the other hand, we address the influence of the broader economic, social and political context on the development of banking systems. Here we try to identify causes of the development of decentralised and centralised banking systems. In doing so, we discuss the influence of banking regulation and other national and international policies, advances in information and communication technologies (ICTs), the degree of centralisation of the political system and the role of banking associations. To be clear, the intention is not only to identify reasons why regional banks exist, but also to ask whether or not regional banks can actually conduct decentralised banking amidst unifying (international) banking regulations and the ubiquitous use of ICTs in banking, especially the application of rating systems in lending to SMEs (Gärtner and Flögel, 2013; Flögel, 2018a).

The three country cases of Germany, Spain and the UK were selected because they putatively show substantial variety concerning the centralisation of banking. Germany stands for a decentralised banking system that has more than 1,500 regional and economically autonomous banks, of which the vast majority are savings and cooperative banks (Gärtner, 2008; Gärtner and Flögel, 2013). Importantly, when conducting the comparison, we had to consider that Germany's decentralised and public banking system is a logical result of the specific regional structure of the Federal Republic of Germany. Savings banks have tended to be privatised in centralised countries (like France), but have remained (mainly) public in countries with a federal structure such as Germany and Switzerland (cantonal banks) (Verdier, 2002). The decision in favour of privatisation in France and Italy was taken by the central government, whilst in Germany and Switzerland it would have to be taken by the federal states or cantons (Hakenes and Schnabel, 2005: 22). The UK, on the other hand, exemplifies a centralised system, with London as one of the most important international financial centres in the world. The degree of centrality of Spain's banking system could be considered somewhere between Germany's and the UK's. Spain also provides an outstanding example for research, as the former regional savings banks have been freed from their geographical restrictions since 1988, causing a decline in decentralised banking (Gärtner and Fernandez, 2018).

We conducted our country comparison via various methods. We analysed aggregated data, especially central bank statistics, as well as individual data from selected banks. However, the results are quite heavily based on qualitative work, meaning qualitative interviews. We also relied on participant observation and case studies of exemplary banks. In Germany, we compared two banks, a regional savings bank and a supraregional big bank in detail. In particular, the first author completed a two-month, full-time student internship in different departments of a regional savings bank. Additionally, 40 interviews with experts from five large banks (of which one is studied in depth), four regional savings and cooperative banks and related organisations, meaning banking associations and business consultancies, allowed us to make comparisons and provide a broader picture (for a discussion of our methodology, see Flögel 2018a).

Each of the country reports differs, as their corresponding historical paths and overall economic systems are very distinct. Furthermore, since there is no appropriate data from one common database (e.g. ECB-Data), we have to use different national data to approximate the aspects we need. Moreover, access to interview experts differed between the countries considered. The three country reports are therefore structured differently. In order to gain an overview of an overall structure that also enables comparison, each country report is structured in three parts following this introduction (Part A). Part B introduces the reader to the structure of the banking system in question. Part C explores the decision-making process of exemplary banks and Part D deals with future possibilities for Spain and the UK and recent challenges facing decentralised banking in Germany.

B   The German banking structure

Germany's banking system is characterised by its three parallel "private", "public" and "cooperative" pillars (Hackethal et al., 2006; Gärtner, 2009b). Table 1 summarises key structural figures of the banking pillars. In 2015, the private pillar consisted of 271 commercial banks including the four so-called "big banks" (Deutsche Bank, Commerzbank, Postbank and UniCredit) with nationwide branch networks. The public pillar consisted of 414 publicly owned regional savings banks in addition to 28 Landesbanken and special-purpose banks. One thousand and twenty-three (1023) cooperative banks belonged to the cooperative pillar, most of which are regional banks (Deutsche Bundesbank, 2016).

Table 1: Key structural figures of the three German banking pillars in millions of Euros (2013)

	Number of banks	Number of branches		Balance sheet total		Lending to non-banks		Obligations to non-banks (deposits)	
	total	total	Ø	total	Ø	total	Ø	total	Ø
Private pillar	297	10,440		2,766,999		837,846	2,821	1,184,425	3,988
Big banks	4	7,614	1 904	1,719,949	429,987	346,210	86,553	525,176	131,294
Regional banks and other commercial banks	179	2,581	14	816,777	4,563	441,649	2,467	542,733	3,032
Branches of foreign banks	114	245	2	230,273	2,020	49,987	438	116,516	1,022
Public pillar	447	13,212	30	3,165,618	7,082	1,443,582	3,229	1,177,306	2,634
Savings Banks Finance Group	426	13,183	31	2,216,276	5,203	1,187,597	2,788	1,116,984	2,622
Landesbanken	9[2]	443	49	1,092,582	121,398	444,369	49,374	301,962	33,551
Savings banks	417	12,740	31	1,110,790	2,664	708,263	1,698	799,244	1,917
Special-purpose banks	21	29	1	949,342	45,207	255,985	12,190	76,100	3,624
Cooperative pillar	1,083	12,635	12	1,034,232	955	497,234	459	596,834	551
Cooperative central banks	2	13	7	272,937	136,469	33,070	16,535	32,344	16,172
Cooperative banks	1,081	12,622	12	761,706	705	461,633	427	559,574	518
Total	1,827	36,287	20	6,966,849	3,813	2,778,662	1,521	2,958,565	1,619

Source: Gärtner and Flögel, 2017a: 14 (translated)

Subject to the same banking regulations, financial institutions from all three pillars compete as universal banks with each another for customers in almost all market segments, including SME lending (Hackethal et al., 2006)" (Flögel, 2017: 6). However, specific laws hamper mergers and acquisitions (M&A) between banking pillars, protecting the relatively small banks of the public and cooperative pillar from being acquired by large private competitors (Schmidt et al., 2014; Gärtner and Flögel, 2017a).

"The so-called regional principle accounts for the regional market segregation of German savings banks, preserving the nationwide presence of independent regional savings banks (Gärtner and Flögel, 2014). The principle obliges savings banks to place branches only within the territory of their authority (the responsible municipalities) and to lend to institutions, companies and private individuals in that territory first. The savings banks legislation of the federal states codifies the regional principle (e.g. §3 of the Sparkassengesetz Nordrhein-Westfalen) and the article regarding each savings bank specifies the geographic area in which lending is permitted. Most cooperative banks apply similar regional market segregation on a voluntary basis (Bülbül et al., 2013)" (Flögel, 2018a: 41). The regional principle and the acquisition re-

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[2] Whereas nine *Landesbanken* reported to the Deutsche Bundesbank in 2013, only seven operated as "ordinary" *Landesbanken* because WestLB was in the process of liquidation and the Federal State of Berlin had sold Landesbank Berlin to the Savings Bank Finance Group.

strictions between the banking pillars have likely contributed to the high and consistent presence of regional savings and cooperative banks in almost every region of Germany. Accordingly, Germany has a rather decentralised banking system where regional banks have a substantial presence and economic impact (Hardie and Howarth, 2013b; Dixon, 2014; Schmidt et al., 2014; Klagge et al., 2017; Gärtner and Flögel, 2017a). This assertion is not meant to deny the existence of concentrating trends due to M&A within the banking pillars, which is discussed in Section 3.2. The following sections describe the national context of banking in Germany (Section 1), its financial centres and banking associations (Section 2) and the structure and lending activities of its banking groups (Section 3).

1 The national context

The national context is important for understanding the development of banking system centralisation, not only with respect to banking regulation but also with respect to business culture, economic structure and regional disparities. This is because decentralised banks need savings from their region to gain deposits, otherwise they depend on the capital market for refinancing (market-based refinancing), which in turn reduces their regional independency with respect to lending decisions (Hardie and Howarth, 2013a; Gärtner and Flögel, 2017b). As we have argued in Gärtner and Flögel (2017b), the fact that regional banks in Germany can survive even in disadvantaged and peripheral areas is partly explained by the interaction of complex mechanisms of regional balance in conjunction with a specific spatial structure. Public transfers between regions and a decentralised structure allow a basic volume of economic and social life in all of Germany's regions and mitigate the development of regional disparities. In the following section, we discuss regional disparities in Germany in comparison to Spain. We examine the refinancing of decentralised banks in Germany in Section 1.1 and introduce the reader to German banking regulations in Section 1.2.

1.1 Regional disparities, savings and bank refinancing

Different methods, regional bases, variables and indicators are used to measure interregional disparities within a country (for example, see Kessler and Lessmann, 2009; Checherita et al., 2009). Three main aspects are discussed below: the interregional degree of income inequalities, gross domestic product (GDP) inequalities and the degree of interregional redistribution of money. Concerning the GDP, Figure 1 shows that disparities between the NUTS 2 regions are slightly lower in Germany than in Spain. In Germany, the NUTS 2 regions are the 38 Administrative Territories or, in some cases, small states. In Spain, the NUTS 2 regions are represented by the 18 Autonomous Communities (AACC). The spatial dispersion of GDP is important for regional banks, because banks need companies that demand services and loans and a minimum amount of income in each region to ensure that private individuals can save income, as regional banks are dependent on regional savings.

An OECD comparison that calculated the regional range in household primary income as a percentage of income in the country's median region (for 2009) reveals several differences. In Germany, the range between the regions is 48.7%, lower than in Spain, where it is 55.5% (OECD, 2013), thereby indicating lower spatial disparities of primary income in Germany. Against the background of the substandard development of the former GDR-regions in Germany, it is astonishing that GDP and primary income are more equally distributed between the regions in Germany than in Spain (Gärtner and Fernandez, 2018).

Figure 1: GDP (average 2005-2014) in Spanish (left) and German (right) NUTS 2 regions
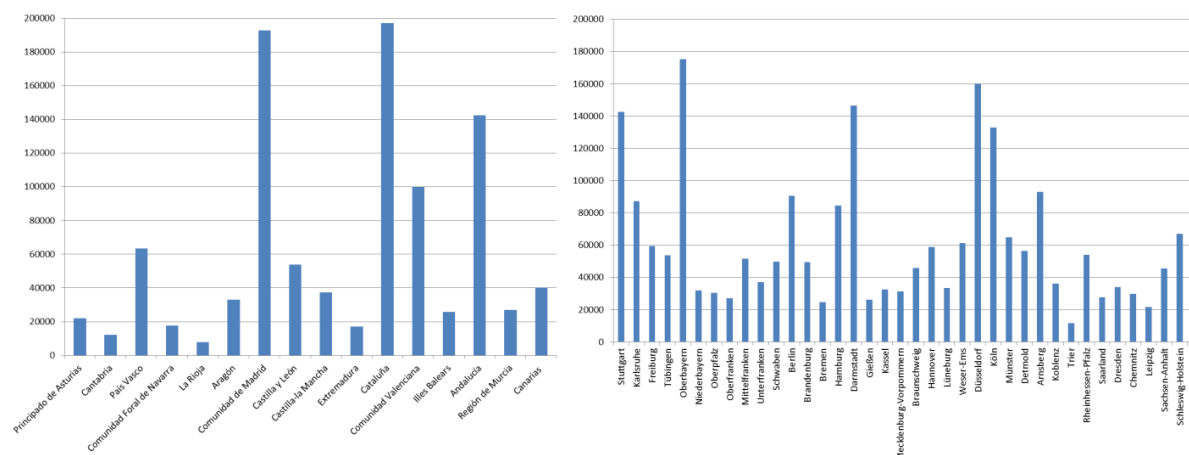

Source: Gärtner and Fernandez, 2018

Disposable income adds all social benefits to primary income (i.e., wages, property and entrepreneurial income) and transfers and subtracts taxes on income and wealth and social contributions (and transfers). The Gini index of disposable income indicates lower regional inequalities of disposable income in Germany compared with Spain. The Gini index takes on values between 0 (income equality) and 1. For Germany it was 0.0792 and for Spain it was 0.093 (OECD, 2013). Differences between primary income and disposable income reflect the state's redistribution mechanisms, which can be identified with the variation coefficient[3] (Leßmann, 2005) for regional disposable income of private households as a percentage of primary income. The statistical relation is positive, which means that if the indicator is higher, then the redistribution between the regions is higher. The variation coefficient for Germany is higher (0.079739) than Spain (0.043495), indicating that redistribution in Germany is more pronounced than in Spain (Gärtner and Fernandez, 2018).

Looking at the refinancing sources of banks, one must consider that no funding gap existed in Germany as deposits exceeded loans by €179.903 billion in 2014 (Deutsche Bundesbank, 2014). In contrast, lending in the UK far exceeds residential deposits (Turner, 2010), which also holds true for Spain. According to Hardie and Howarth (2013a: 7), the funding gap is valued at above $1 trillion in the UK and above $400 billion in Spain, whereas it was non-existent in Germany in 2007.

Regarding the regional banks, meaning savings and cooperative banks, no such funding gap exists overall in Germany (see Figure 2). Though savings exceed lending in Germany by 14% (savings banks) and 20% (cooperative banks), the surplus in savings is far more advanced in economically less affluent eastern Germany than in the west.

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[3] VC =

Figure 2: Savings surpluses of savings banks and cooperative banks (average 2009-2011)
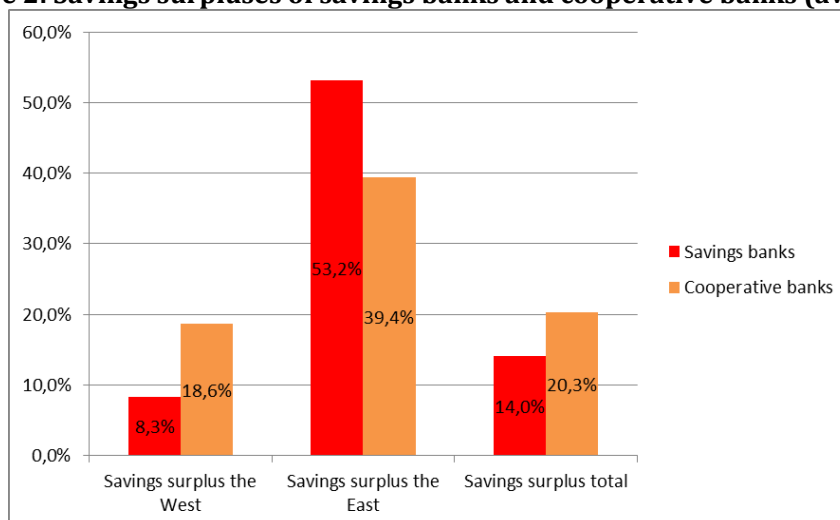
Source: Gärtner and Flögel, 2017a: 91(translated)

However, the total deposit surplus has no meaning for the refinancing abilities of individual banks. Table 2 presents the savings (that is, deposit) surpluses for individual regional banks and shows that not all savings and cooperative banks collect enough deposits to refinance lending. Thirty-two percent of the savings banks in western Germany were dependent on external funds between 2009-2011. Accordingly, German regional banks also rely on other sources of refinancing, though non-bank deposits represent the most important source of refinancing, as Figure 3 shows. The figure reveals that debt securities in relation to the non-bank deposits of regional banks did not pass the 10% threshold at any point in the time period and fell sharply from 2008 to 1.7% in 2014 (Figure 3). In contrast, debt securities in relation to the non-bank deposits of supraregional banks, i.e., big banks, branches of foreign banks, Landesbanken, cooperative central banks and special-purpose banks, exceeded the 100% threshold from 2004 to 2008 and amounted to 89.6 % in 2014, indicating their high but diminishing importance for supraregional banks' refinancing. Thus, capital market dependency proves to be almost unimportant for regional banks, whereas it remains a key basis of refinancing for supraregional banks.

Table 2: Share and number of savings banks and cooperative banks with savings surpluses (average 2009-2011)

	Savings surplus in the west		Savings surplus in the east		Savings surplus total	
	%	number	%	number	%	number
Savings banks	68	249	100	64	74	313
Cooperative banks	85	827	94	100	86	927

Source: Gärtner and Flögel, 2017a: 92 (translated)

Figure 3: Important sources of banks' refinancing in billons of euros
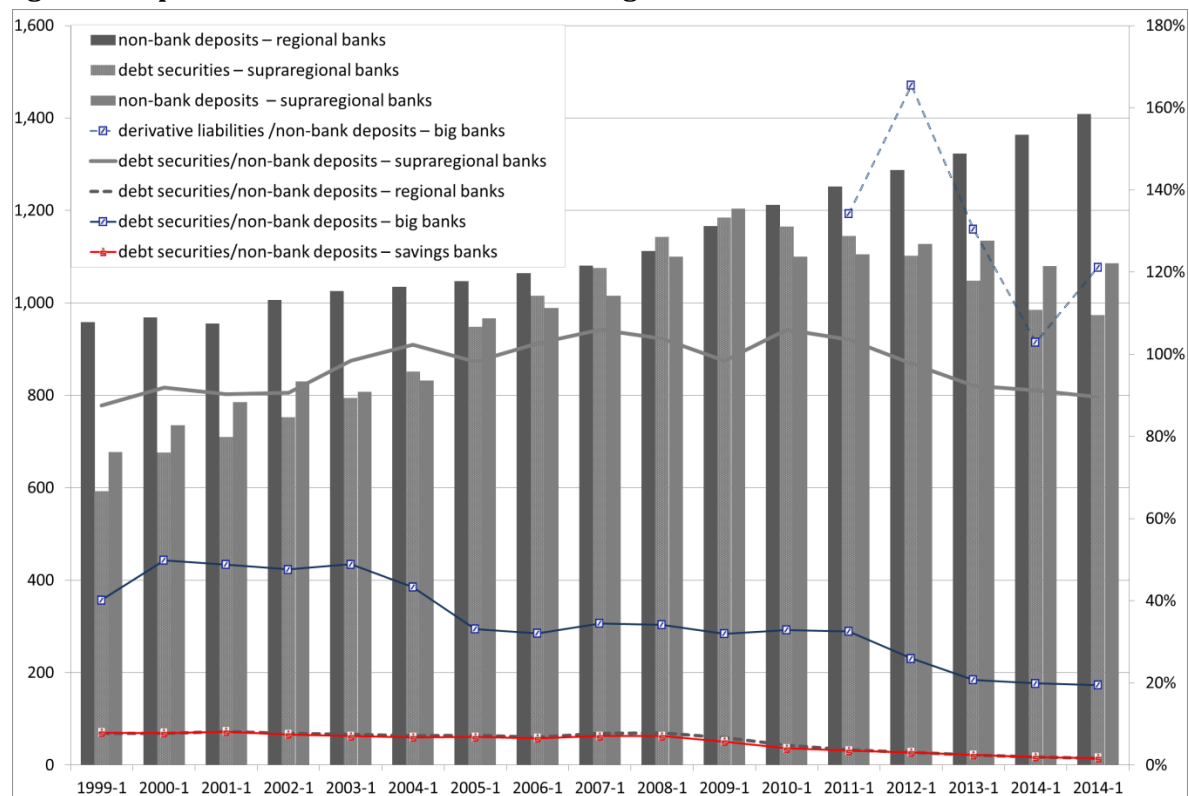
Source: Flögel, 2018b

Having said that, this comparison needs to be contextualised because the bulk of supraregional banks' debt securities are issued as Pfandbriefe (German covered bonds) by the central institutions of the regional banking groups (meaning the Landesbanken and cooperative central banks) and mortgage banks. Consequently, the securities are traded within the banking groups, rather than on active security markets (Hardie and Howarth, 2013b). Big banks' debt securities have decreased in relation to non-bank deposits since 2002 and accounted for only 19.5% in 2014. Nevertheless, big banks use other sources of market-based refinancing, especially derivative liabilities that accounted for 121.2% of big banks' non-bank deposits in 2014.

Overall, banks in Germany, and especially regional ones, still tend to rely on traditional deposits as their main source of refinancing. Nevertheless, regional banks also can and do lend above the level of local deposits if necessary. The high proportion of the derivative liabilities of big banks tends to be unrelated to the financing of lending to non-banks, but is used to finance derivative assets.

1.2 Banking regulations

Germany implemented its first banking regulation in 1931 in response to the global financial and economic crisis (Hartmann-Wendels et al., 2010). The Gesetz über das Kreditwesen (KWG), or the German Banking Act, is the most important law governing banking regulations in Germany. The KWG and other bank-related laws are supplemented by numerous regulations of which the Mindestanforderungen an das Risikomanagement (MaRisk), or minimum requirements for risk management, is vital for regulating the day-to-day credit business because it specifies the organisation of processes for lending.

Efforts to harmonise international regulatory standards, aimed at hindering a competitive race to the bottom in national regulations, have resulted in banking regulations since the 1980s and are also responsible for the content of MaRisk (Flögel, 2018b). The Basel Committee on Banking Supervision develops guide-

lines that inform national banking regulations and ought to be transformed into national laws. In the European Union (EU), the Basel Accords are mitigated at the EU level before the member states implement them. The list below highlights key changes in banking regulations according to Paul (2011).

A set of recommendations from 1988 now called Basel I outlined minimum capital requirements for banks, focusing on a rough risk-weighting of assets. Banks were required to hold at least 8% of capital based on their risk-weighted assets. Basel II reshaped banking regulations and lending processes decidedly. It consists of three pillars: first, quantitative minimum capital requirements; second, minimum organisational standards and qualitative supervision of banks; and third, measures to increase market transparency. MaRisk implemented the second pillar of Basel II into German law, became effective in 2005 and unified the "minimum requirements for the credit business" (MaK) with other regulations (Hartmann-Wendels et al., 2010). MaK was published in 2002 and became effective in June 2004 (BaFin, 2002). It regulates key aspects of the credit-granting process, especially the separation of the Markt (front office), where customer advisors work and grant credits, from the Marktfolge (back office), which monitors credit risks. It further governs the obligatory use of risk classification systems, i.e. rating systems (BaFin, 2002), and therefore profoundly changed the credit-granting practices of banks. The savings bank experts that we interviewed reported that the implementation of MaK had a substantial impact. The former "credit teams for SME clients" were split into front and back offices and a common rating system for SMEs, the so-called StandardRating developed by the Savings Banks Finance Group, was introduced in 2002 to quantify the default risk of SMEs.

Basel III does not replace Basel II requirements, but supplements them for the purpose of remedying the banking regulation shortcomings exposed by the global financial crisis. Basel III proposed an increase in the amount and quality of capital that banks must hold in relation to their risk-weighted assets (Höpfner, 2014). In reaction to the liquidity shortages of a range of banks in the financial crisis (Shin, 2009; Brunnermeier et al., 2009; Marshall et al., 2011), Basel III specifies liquidity risk regulation and monitoring. Liquidity risk in banking emerges when the duration of assets (such as loans) exceeds the duration of the liabilities refinancing those assets. With CRD 4, Basel III recommendations became effective in the EU in 2014. Basel III regulations are an issue for regional banks because they force all banks to comply with substantial reporting standards. The resulting substantial fixed reporting costs are relatively higher for small regional banks than for large banks (Alessandrini et al., 2016). Furthermore, large systemically important banks like Deutsche Bank now fall under European banking regulations, whereas German banking regulations (BaFin and Bundesbank) still govern savings and cooperative banks.

Overall, (international) banking regulations shape how banks lend to businesses. The implementation of and changes caused by MaK and MaRisk in particular have impacted the place of credit decision-making in Germany, as they split lending authority between front and back offices and suggested the application of rating systems to both regional and supraregional banks. In reaction to the global financial crisis, Basel III imposes substantial additional reporting and supervision standards that tend to place a disproportionally heavier burden on small banks. Therefore, a small banking box, with simplified reporting standards for small banks, is currently being discussed in Germany (Dombret, 2017; Schiele et al., 2017) to mitigate this disadvantage.

2 Financial centres and banking associations

As described in the introduction, we distinguish between decentralised banks, which benefit from close relationships with their customers, and centralised banks, which benefit from close relationships with companies within the financial value chain. Proximity is important for both, but at different points of the value chain. Decentralised banking suggests a decentralised allocation of banks and other financial institutions. However, decentralised locations, far from financial centres, carry the disadvantage of a lack of proximity to other banks, rating agencies, specialised lawyers and so on. This poses the risk of a lack of specific (financial) knowledge, skills and access to services. In contrast, centralised banking is associated with the development of financial centres, where intensive flows of knowledge between co-located organisations occur at the expense of distance to remote customers and regions. As we have argued in Gärtner and Flögel

(2017a), cooperation in banking associations and finance groups is one main tool used by decentralised banks to overcome distance to financial centres and gain access to advanced banking knowledge. Cooperation in finance groups enables small banks to achieve economies of scale "in a wide variety of activities" (Bülbül et al., 2013; Gärtner and Flögel, 2013; 2017a; Greeham and Prieg, 2015). All German savings banks belong to the Sparkassen-Finanzgruppe, or Savings Banks Finance Group, which is covered by the German Savings Banks Association (DSGV) on the national scale. Similarly, all cooperative banks belong to the Cooperative Bank Finance Group coordinated by the National Association of German Cooperative Banks (BVR) at the national scale. This section discusses the decentralised structure of Germany's financial centres regarding retail finance and indicates the role that banking associations play in the competitiveness of regional savings banks.

The German banking system is rather decentralised. Map 2 shows the distribution of the headquarters of savings and cooperative banks, which is rather even across Germany. In particular, the distribution of savings bank headquarters mirrors the distribution of municipal headquarters, as municipalities own their savings banks and the regional principle restricts savings banks from doing business outside their municipalities. Accordingly, there are several different regional financial centres and Frankfurt, the most important financial centre, tends to be less central to the German financial system than, for example, London is in the UK (Klagge and Martin, 2005; Gärtner and Flögel, 2014; Wójcik and MacDonald-Korth, 2015). Correspondingly, Frankfurt was only ranked the 23rd most important global financial centre according to the Global Financial Centres Index in 2017, whereas London took 1st place (GFCI 21, 2017). With respect to private banks' head offices, there are other important financial centres in Germany, as is clear in Map 2 (right side). In addition to Frankfurt, the cities of Munich, Stuttgart, Köln, Düsseldorf, Essen, Berlin and Hamburg also show a significant concentration of private bank head offices. Some private banks, like Bankhaus J. Faisst located in the peripheral town of Wolfach in Baden-Württemberg, are also far from regional financial centres. Remarkably, except for the capital city of Berlin, no private bank is located in eastern Germany (Gärtner 2013b).

Map 2: Central offices of savings banks, cooperative banks (left) and private banks (right)
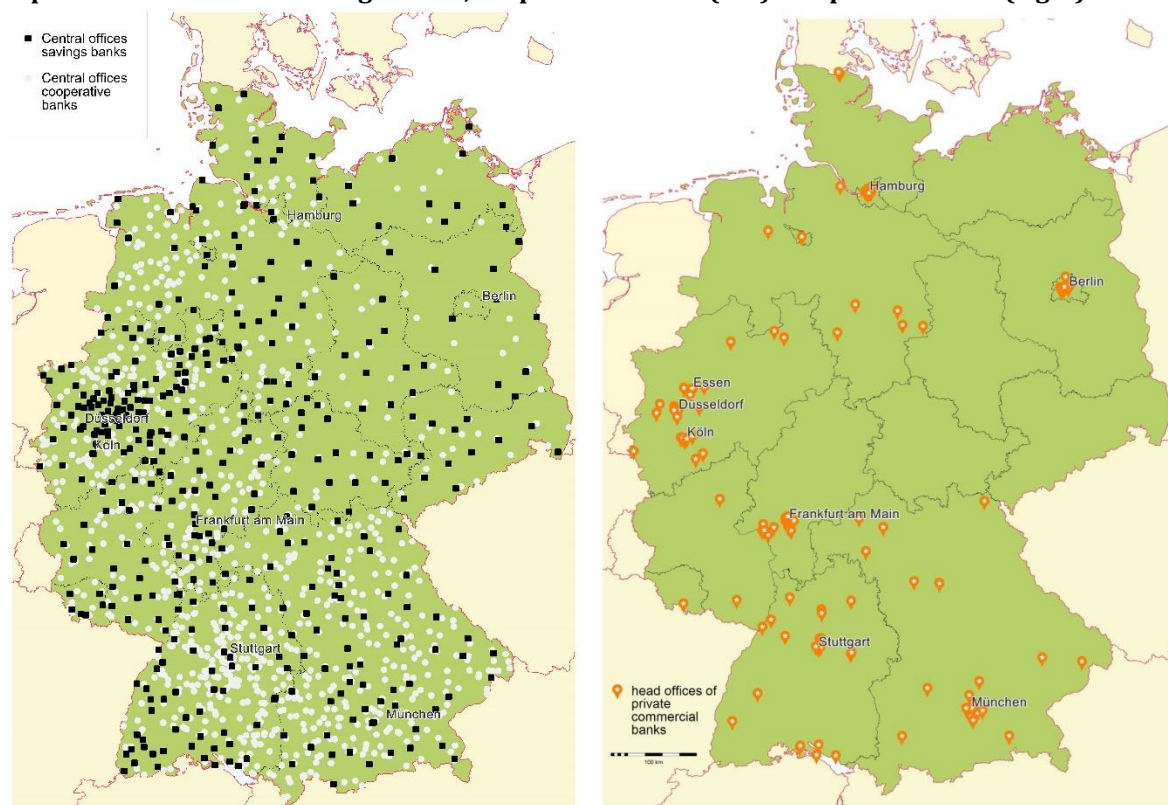
Authors' maps. Source: ECB, 2014

Turning to banking associations, the Savings Banks Finance Group consists of around 600 organisations (Simpson, 2013). The approximately 400 regional savings banks and a range of other banks, companies and associations also belong to the Savings Banks Finance Group. The Finance Group differs from a group of companies or a holding company like Deutsche Bank in that the decentralised savings banks and their local municipalities own and control the central institutions. Therefore, in contrast to a corporate group, the CEOs of savings banks' central institutions are not allowed to decide from the top down, but have to achieve consensus for joint action from the bottom up (Breuer and Mark, 2004). In this way, the Savings Banks Finance Group represents a Verbundsgruppe, or a buying and marketing group, a common form of commercial organisation in Germany, especially in retail (Flögel et al., 2013).

Savings Banks Finance Group organisations operate on three geographical scales. At the regional scale (around the NUTS 3 level) the approximately 400 savings banks are controlled by their respective local authorities (municipalities) and operate as universal banks in their region. The 12 savings bank associations operate at the district scale. The savings banks and municipalities of the territories of the savings bank associations control the associations. These savings bank associations own 10 public building societies and 11 public insurance companies and, together with the Bundesländer, seven Landesbanken. The 12 savings banks associations control the DSGV and the DekaBank. Both organisations operate for the whole Savings Banks Finance Group nationwide. The functions of the different scales for the business of the savings banks are as follows (Ach and Heinrich, 2007; Simpson, 2013; DSGV, 2014; Gärtner and Flögel, 2017a):

Regional savings bank associations audit their member banks and provide essential tools for risk management. The Landesbanken help clients of the savings banks in foreign business and finance larger SMEs with syndicate loans together with the savings banks. On the national scale, the DSGV provides marketing and consulting tools in services to SMEs (Wemhöner and Grunwald, 2008). More importantly, affiliated companies of the DSGV run the rating systems, including the StandardRating that all savings banks apply for lending to SMEs, and another company provides the bank-ICT. Finally, companies of the Savings Banks Finance Group offer special financial products to the customers of the savings banks, like factoring, leasing and insurance policies (savings bank, 9 December 2013, protocol) (Flögel, 2018b). Via the companies and banks of the Finance Group, regional savings banks can offer the whole range of advanced financial

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products to SME customers like large international banks. Below, we discuss two functions of the Savings Banks Finance Group, the auditing and the provision of bank-ICT and rating systems, to illustrate the financial group's influence on the business of individual banks. The results for this discussion are taken from the savings bank that we studied in detail and where we conducted participant observation (Flögel 2018b).

Regional associations are involved in lending to SMEs ex-post because they audit the savings banks, for example by annually reviewing the accuracy of a sample of lending decisions. This function means that the regional savings bank associations are significant agents for supervising the robustness of their member banks. This is an important task, because all member savings banks are liable for each other through the common guarantee funds. Savings bank CEOs tend to be concerned about the standing of their savings bank in the association and take the judgement of the external auditors into account (regional bank, 19 December 2013, protocol). In fact, during participant observation, the customer advisors of the savings bank stated that they use the external audit as a means to oppose politically motivated pressure to grant loans from the CEO and other high-level supervisors (regional bank, 16 December 2013, protocol). This indicates the countervailing force of the external audit to political influences on lending decisions. No case of political influence was directly observed during participant observation, but the customer advisors reported two cases of lending to large SMEs in which regional politicians directly approached the CEO about lending to an existing firm and a start-up company, respectively. In both cases, the CEO ordered an evaluation of the credit request by a customer advisor in charge of large SMEs, which eventually led to rejection (regional bank, 16 December 2013, protocol). This customer advisors' report supports assumptions of political influence on the lending decisions of public German savings banks (Gropp and Saadi, 2015). It also indicates that politicians do not circumvent the formal credit decision-making process. In other words, they do not dictate credit decisions, but are only able to enforce a detailed evaluation of credit requests. It seems likely that the lack of equally strong banking associations, with shared risk bearing via guarantee funds and auditing mandates, makes Spanish savings banks more vulnerable to political capture.

All savings banks use one integrated bank-ICT system, the One System Plus (OSPlus), developed and maintained by Finanz Informatik GmbH & Co. KG nationwide. Similarly, the Sparkassen Rating und Risikosysteme GmbH develops and maintains the StandardRating that all savings banks and most Landesbanken apply to compute the rating scores of SME customers. Notably, interview subjects of the savings banks and large banks mentioned the competitiveness of savings banks' ICT and rating systems in retail banking (big banks, 29 May, 25 September 2013 and 11 February 2014 interviews; DSGV, 1 March 2013, interview). Developing and maintaining the systems together on the national scale allows the Savings Banks Finance Group to realise economies of scale. This becomes obvious for rating systems. Banks need large databases of companies' financial statements, payment history, default database and so on to develop accurate rating algorithms empirically. Together, the savings banks are market leaders in SME finance in Germany. Consequently, they have the largest databases for the development of rating systems (DSGV, 1 March 2013, interview). Concerning the bank-ICT, an interviewed customer advisor of a large bank mentioned large banks' frequent mergers and changes to business strategy as an explanation for why savings banks' ICT tends to be more competitive (supraregional bank, 11 February 2014, interview). In his experience, every change causes extensive need for the adoption of the ICT systems of his big bank. In contrast, the overall business continuity of the savings banks and the modularity and adaptability of OSPlus (which is necessary in order to ensure that each savings bank can adapt OSPlus to their business strategy) generate a competitive ICT system for the retail business of savings banks.

Overall, the findings indicate that the regional German savings banks gain competitive advantages in SME lending through their participation in the Finance Group. About 332,116 employees worked for banks, companies and associations of the Savings Banks Finance Group in 2015 (DSGV, 2015). Of these, 3,217 employees belong to the DSGV and the regional savings banks associations. In contrast, the Spanish savings bank association, CECA, only had four employees in 2015, which indicates the limited support that savings banks in Spain can expect from their association (Gärtner and Fernandez, 2018).

Map 3 illustrates the spatiality of service provision in the Savings Banks Finance Group by displaying the locations of the head offices of the abovementioned organisations. Apparently, the financial centre of

Frankfurt is only one of several German cities with a concentration of retail banking competences of the Savings Banks Finance Group. In Frankfurt, the focus is on leasing, securities (DekaBank) and bank-ICT. Other centres are Berlin, where the Sparkassen Rating und Risikosysteme GmbH develops the rating systems (Deutsche Bank also develops its rating systems in Berlin), two regional savings banks associations have their head offices and the DSGV is located. Also, the federal states' capital cities Hamburg, Munich, Stuttgart, Hanover and Saarbrücken represent regional Savings Banks Finance Group centres, as both a regional savings bank association and a Landesbank are located in each city. Therefore, the central organisations of the Savings Banks Finance Group are decentralised, with central offices in the regional financial centres, and thus to some extent reflect the decentralised structure of the Federal Republic of Germany. In contrast to this, all banking associations in the UK are located only in London.

Map 3: Central offices of SME finance organisations of the Savings Banks Finance Group
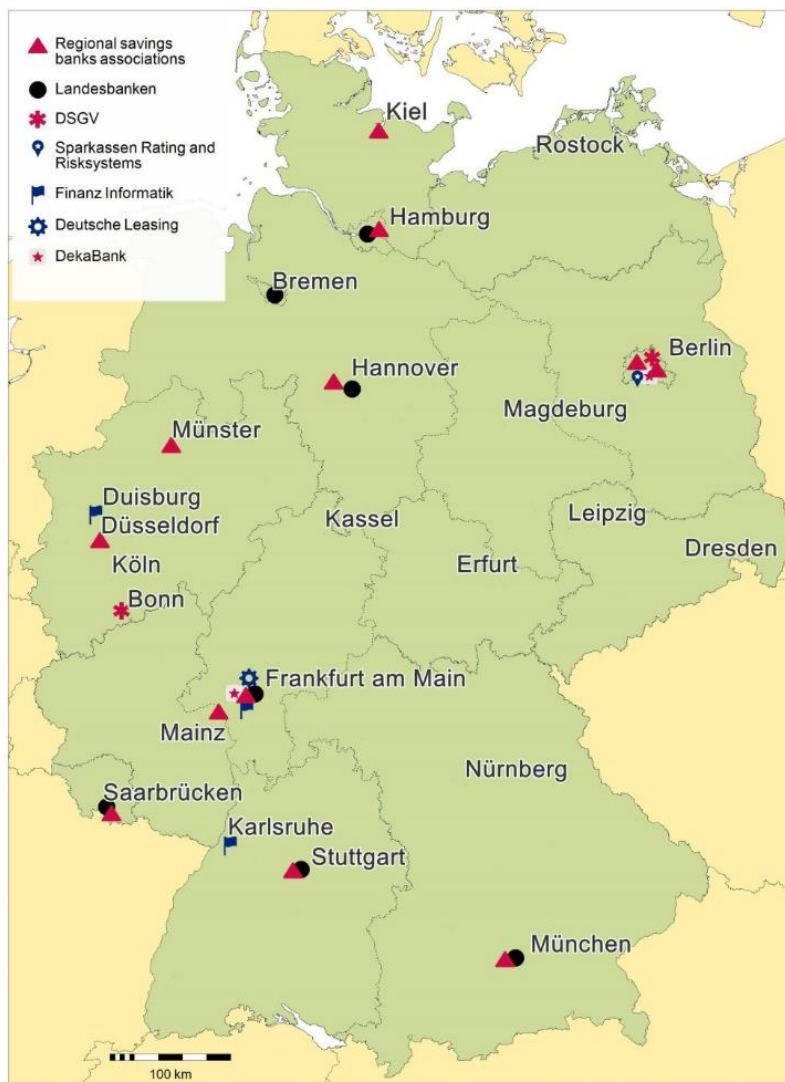
Authors' map

Remarkably, the interviews with large German banks showed that departments important to SME lending, like risk analysis teams and back office departments, are only occasionally located at the headquarters in Frankfurt. For example, Deutsche Bank and Commerzbank have large offices in other major German cities (big banks, 27 November 2012 and 25 June 2013, interviews), which further support the quite decentralised structure of private banks in Germany, as Map 2 (p. 15) indicates. Furthermore, the Association of German Banks (BDB), the association for private commercial banks, has 11 regional banking associations (BDB, 2017). In contrast, the British Bankers' Association (BBA), the leading trade association for the UK's banks, only has an office in London (BBA, 17 July 2016, interview) as do almost 75% of all banks in the UK (Flögel and Gärtner, 2018b).

Overall, the findings indicate that the banking associations and firms of the Savings Banks Finance Groups and the Cooperative Bank Finance Group enable access to specific (financial) knowledge for their regional member banks in Germany. In this way, financial groups mitigate the disadvantages of regional banks (long geographical distance from financial centres) by means of relational and/or social proximity within associations. In Spain and the UK, banking associations tend to be much less significant for banks' day-to-day lending to SMEs, which also become apparent when comparing their size in terms of employees. Concerning financial centres, Frankfurt tends to be much less significant for (SME) finance in Germany compared to Madrid for Spain and London for the UK. This is not only due to the thinner concentration of banks' central offices, but also because both finance groups and the big banks tend to locate expertise outside of Frankfurt, whereas in the UK, all banking associations only have offices in London.

3 Spatial development of the German banking structure

Germany's banking system has been shaped by the parallel structure of three banking pillars with restricted competition within the public and cooperative pillars and the persistence of regional finance groups resulting from this restriction. This section turns to the (changing) geography of the German banking system and especially examines trends of spatial concentration. It focuses on the development of banking groups and pillars. Section 3.1 traces the development of the number of banks and branches, as well as the spatial allocation of employees. Section 3.1 describes changes in the lending activities of the banking groups. Overall, we identify divergent developments. We observe a trend of concentration in terms of the number of banks and branches, continuity in terms of spatial concentration of employees and substantial market share gains by the regional banking groups in terms of lending to enterprises.

3.1 Development of banks, branches and employees

In terms of the number of banks and branches, the banking industry in Germany is becoming more concentrated. Overall, the number of banks has plummeted by 62% since German reunification in 1990, from almost 4,703 to 1,807 banks in 2014 (Figure 4). Whereas the intensity of concentration was especially strong up to 2005, with an average annual decrease in the number of banks and branches of around 1.5%, bank concentration continues. Looking at the banking groups shows that regional banks account for the bulk of this development. The number of cooperative banks (-70% since 1990), and to a lesser extent of savings banks (-46% since 1990), has dropped sharply due to mergers within these two pillars (Deutsche Bundesbank, 2012). In contrast, the number of supraregional banks has risen by 39% since 1990. The increasing number of branches of foreign banks (+88%) largely explains this development (Deutsche Bundesbank, 2015a). The number of big banks has fallen from five to four in the time period because of the acquisition of Dresdner Bank by Commerzbank.
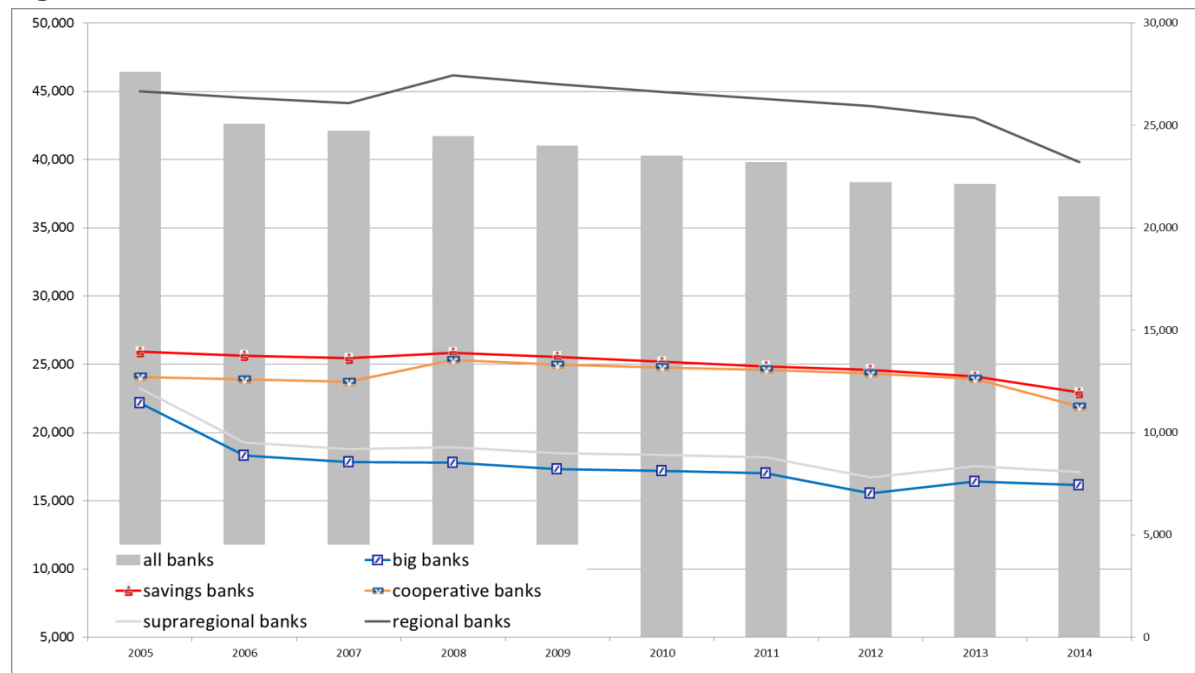
Figure 4: Number of banks and branches
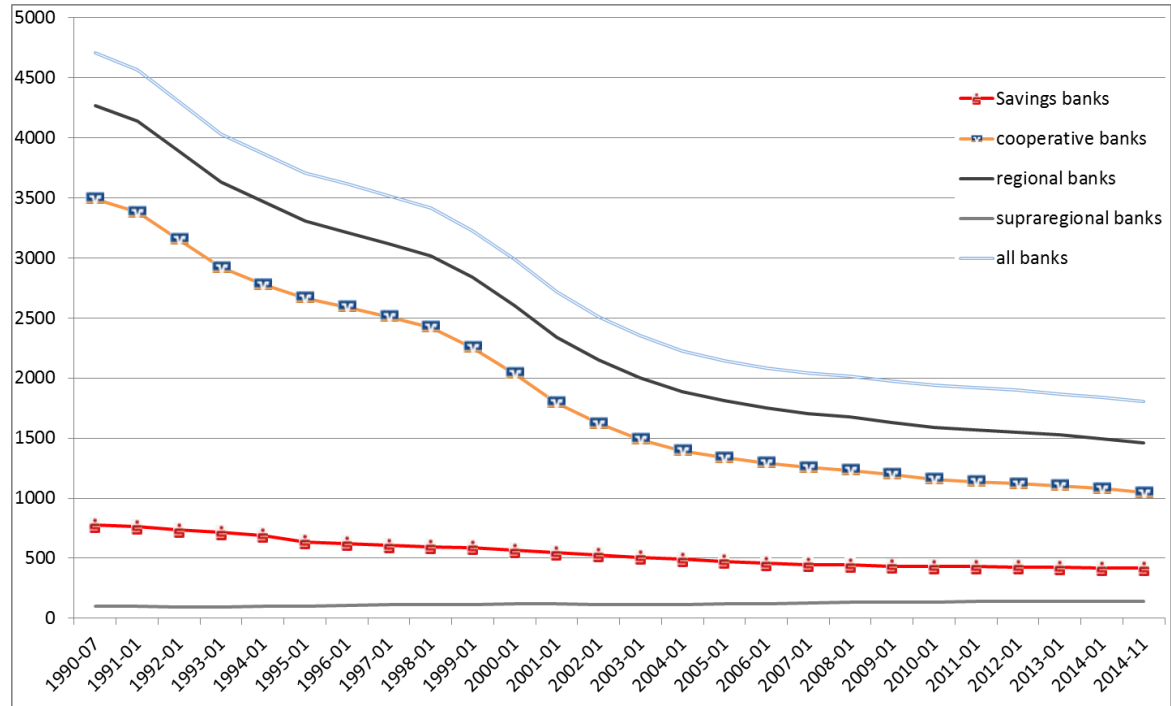
Authors' figure, source: Deutsche Bundesbank, 2015b

Figure 5 displays the development of bank branches since 2005 and indicates the shrinking of the bank branch network. Supraregional and regional banks account for this development. From 2005 to 2014, the supraregional banks closed 33.7% of their branches and regional banks closed 12.9% (Figure 5). Savings banks operated the most bank branches in 2014 (11,957; -14.3% since 2005), closely followed by the cooperative banks (11,269; -11.4% since 2005) and big banks (7,443; -34% since 2005).

Figure 5: Number of bank branches

Source: Flögel, 2018b

The fall in the number of banks and branches indicates the rising concentration of the banking industry. However, this decrease does not provide any information about the spatial allocation of banking. Banks and branches may concentrate in fewer places or may decentralise, depending on exactly where the locations close down. As we have shown elsewhere, the spatial concentration index (SCI)[4] is a reasonable proxy indicator for the spatial concentration of banking activities (Gärtner and Flögel, 2013; 2014). Taking employees, an index value of one would indicate that all the employees of a particular industry are located in one region. Low index values indicate the equal distribution of employees across space relative to the overall allocation of employees of all industries. As expected, Figure 6 shows that the SCI identifies savings and cooperative banks as the most decentralised in Germany. The category of private commercial banks follows in second place. It consists of the four big banks, as well as many other privately owned banks, a few of which operate in restricted regional areas, but most of which operate throughout Germany. The central banks of the regional banks (i.e., Landesbanken and cooperative central banks) are the most concentrated in terms of employees. They mainly operate in the regional financial centres and provide services to the regional institution, as outlined in Section 3. Accordingly, the SCI tends to identify the expected differences between the categories of banks in terms of the spatial concentration of employees.

Figure 6: Geographical concentration index of employees of selected banking groups 2008
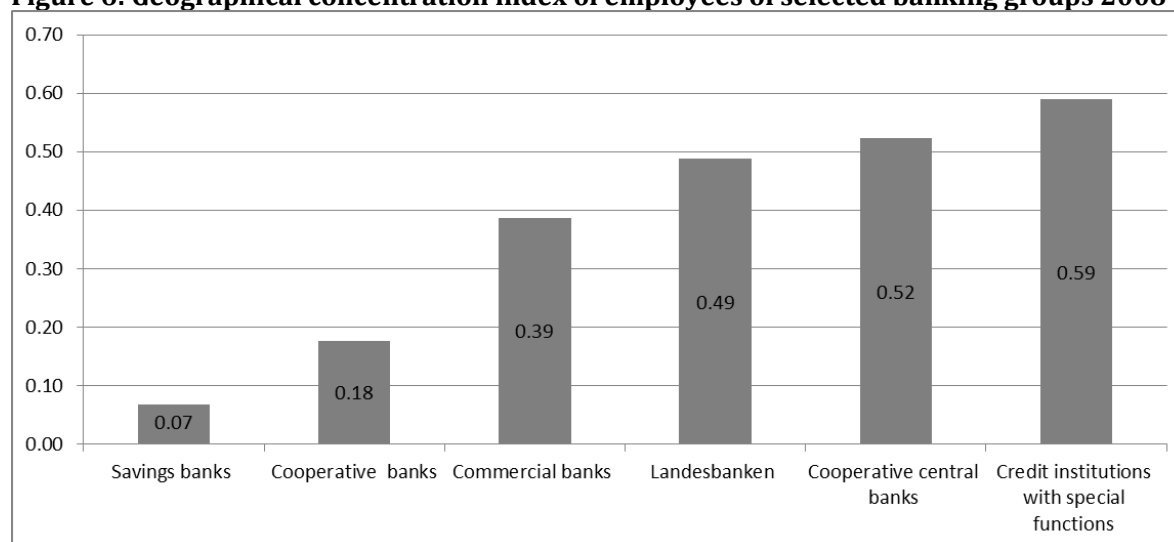

Source: Gärtner and Flögel, 2017a

Turning to a dynamic perspective, Figure 7 reports the SCI for all banks in Germany from the years 2000 to 2013. Between 2000 and 2007, the SCI rose moderately from 0.172 to 0.185, i.e. German banks tended to concentrate their employees during this time period. Since 2007, there has been a slight decrease in the SCI, indicating a decentralisation of bank employees. Data from banking group employees are only available from 1999 to 2008. During this time period, the SCI of commercial banks increased from 0.305 to 0.387, whereas the SCIs of the regional savings and cooperative banks decreased, meaning that employees of both banking groups were less centralised in 2008 than in 1999. Thus, overall a spatial concentration of Germany's bank employees cannot be detected; regional banks demonstrate a tendency to decentralise their employees, whilst commercial banks tend to centralise their employees.

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[4] This index needs employment data for the banking sectors (j) and is calculated on the basis of cities and counties (NUTS 3 level) as a common spatial level (i). With this approach we can build the variable "banking system spatial concentration index" (SCI).

$$SCI_j = \sum_j \ | \frac{b_{ij}}{B_{i.}} - \frac{b_{.j}}{B_{..}} | *0,5$$

bj = employees of sector j
B = all the sectors' employees
i = region

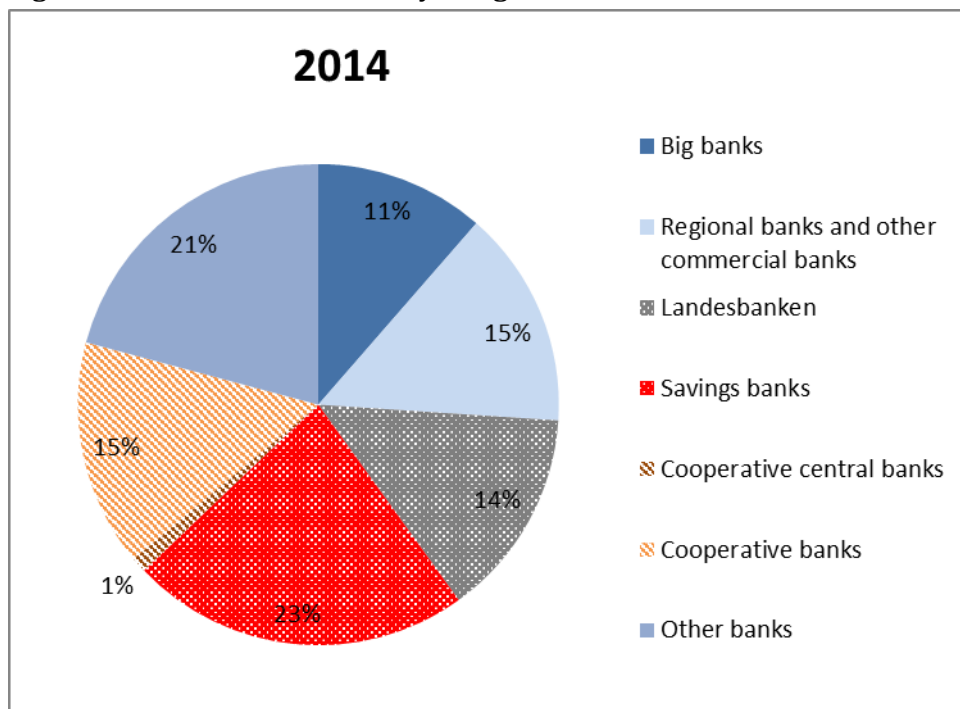**Figure 7: Development of the spatial concentration of bank employees**
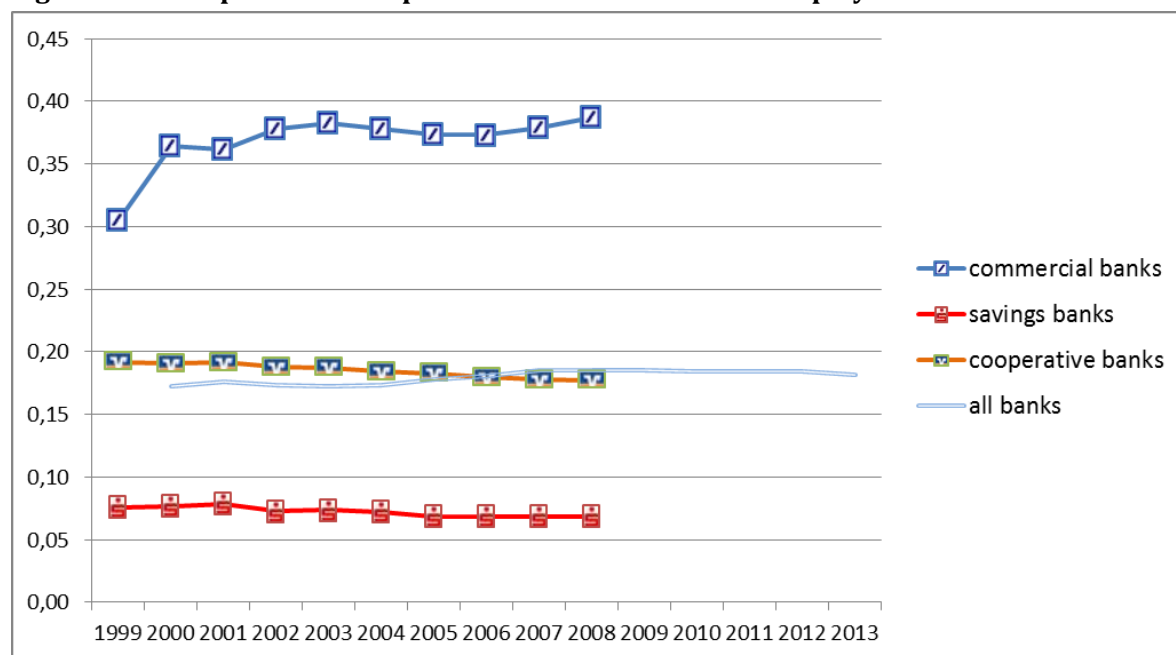
Authors' calculation, source: Bundesagentur für Arbeit, 2014

In summary, the German banking sector has become more concentrated overall. M&A within regional banking groups mainly drive down the number of banks. Whereas the M&A of regional banks tend to affect banking competition in a limited way due to regional market delimitation, the distance to customers grows, just as the distance to the lending decision-makers at banks' central offices grows. In contrast to these spatial concentration trends, the spatial distribution of bank employees shows no overall trend towards concentration. Instead, it shows differences between regional and supraregional banking groups. The former have tended to further decentralise and the latter to further centralise their employees, indicating the persistence of differences between these banking groups in terms of spatial organisation.

3.2 Credits by banking groups

Figure 8 illustrates the percentage of credits to non-banks (such as manufacturing companies and private households, for example) by categories of banks in 2014 and demonstrates the significant market shares of public and cooperative banks in Germany. The savings banks were the most important banking group in terms of lending, followed by the cooperative banks, "regional banks and other commercial banks", and Landesbanken. The market shares of the four big banks, which amounted to 11%, were merely in fifth place in 2014. Therefore, public and cooperative banks are much more important in Germany than in the UK and Spain. For example, commercial banks in Spain almost always have the highest market shares in terms of lending, except for lending to construction and real estate. Here, Spanish savings banks achieved market leadership in the 2000s, but the sector incurred heavy losses during the financial crisis (Gärtner and Fernandez, 2018). In the UK, private (large) commercial banks only have a few competitors left, as the big four private banks had a market share of 90% in 2013 (British Business Bank, 2016).

Figure 8: Credits to non-banks by categories of banks in 2014

2014

- ■ Big banks
- ▨ Regional banks and other commercial banks
- ▨ Landesbanken
- ■ Savings banks
- ▨ Cooperative central banks
- ▨ Cooperative banks
- ■ Other banks

11% · 15% · 14% · 23% · 1% · 15% · 21%

Source: Gärtner and Flögel, 2017a: 26 (translated)

"Figure 9 illustrates how much credit all banks in Germany lent to non-financial firms and the self-employed between 1999 and 2015. The total credit volume of all the banks exhibits conjectural movements but no overall tendency. In other words, banks lent approximately the same amount of credit in 2015 (€1.176 trillion) as in 1999 (€1.133 trillion). A consistent picture emerges when differentiating between regional and supraregional banking categories. Owing to their regional market segregation, and as indicated by their low SCI values, savings and cooperative banks are grouped as regional banks. Due to their national or international market reach and relatively high SCI values, big banks, branches of foreign banks, Landes-banken, cooperative central banks and special-purpose banks are grouped as supraregional banks[5]. Since 2002, regional banks have almost continuously increased their market share at the expense of supraregional banks. Concerning the financial crisis, from the lending peak in 2008 to the lowest value in 2010, banks reduced overall lending by €47 billion. Whereas the big banks and especially the Landesbanken reduced credit, the regional savings and cooperative banks actually increased lending volumes by €5.7 and €8 billion, respectively, thus attenuating overall credit reduction" (Flögel, 2018a: 41).

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[5] Two banking groups that account for approximately 20% of the loans could not be classified because they include regional and supraregional banks.

Figure 9: Credit to non-financial firms and the self-employed by categories of banks in billions of euros
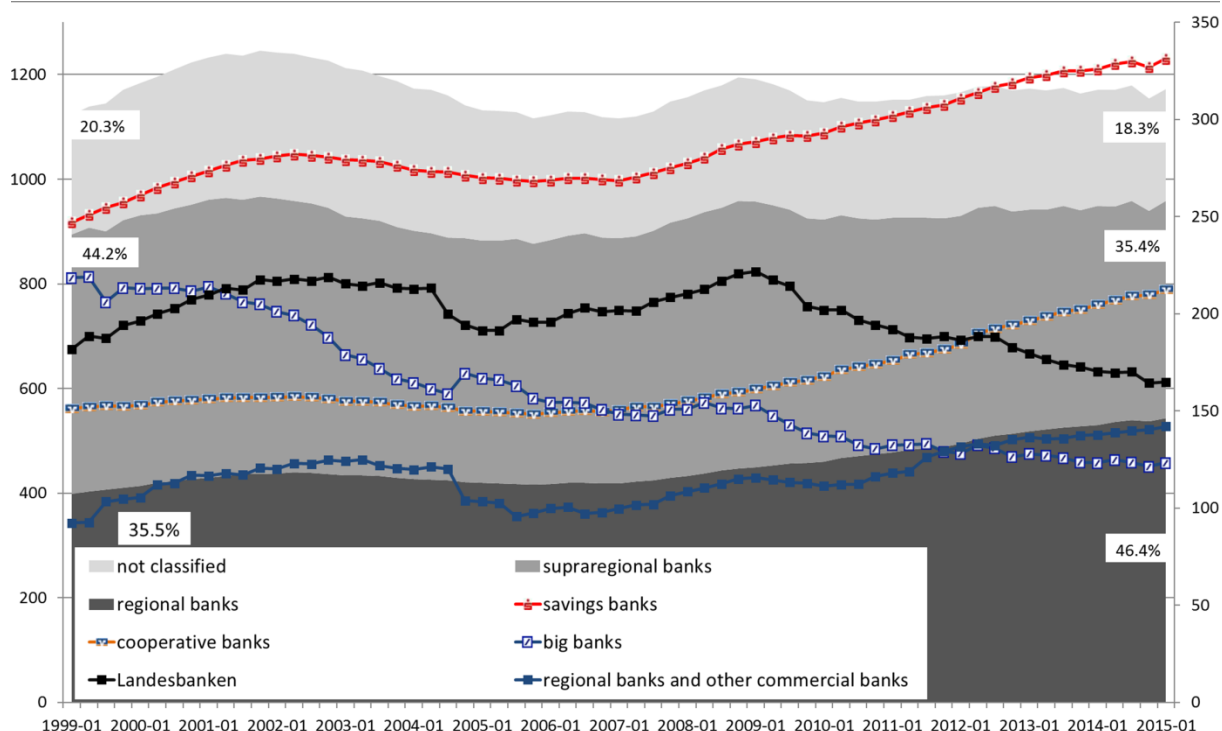
Source: Flögel, 2018a: 41

Overall, Section 3 indicates that despite a reduction in the number of banks and branches, the German banking system continuously tends to decentralise. This can mainly be explained by the persistence of the regional savings and cooperative banks, which show no tendency towards a spatial concentration of employees and have increased their market share at the expense of private banks, especially the four big banks in Germany. The high level and market share gains of public and cooperative regional banks stand in remarkable contrast to the situation in Spain and the UK. Particularly in the UK, alternatives to large commercial banks hardly exist. Having said this, mergers within regional banking groups increase the size and market area of regional banks, which may threaten the "rationality" of regional banks.

C The place of lending decision-making

A lively area of research has emerged on (soft) information production, the discretion of bank employees and the application of rating or scoring systems in the context of the lending process organisation of banks (Agarwal and Hauswald, 2007; Alessandrini et al., 2009b; Berg et al., 2013; Filomeni et al., forthcoming). This research is inherently connected to the place of decision-making because banks' lending processes determine the places where lending decisions are made (Flögel, 2018a). As stated above, lending decision-making in proximity to clients is associated with regional banks, whereas large banks tend to decide on credit proposals at a longer distance, like in their head offices (Pollard, 2003; Berger et al., 2005; Gärtner, 2008). However, all savings banks apply the same (centrally developed) rating systems for lending to SMEs in Germany (Section 2). Furthermore, large banks can and do allocate decision-making authority to their local branch network and may also decide on credit in geographical proximity to customers (Flögel, 2018a). Finally, advances in ICTs potentially render short geographical distance irrelevant when it comes to accessing SME finance information (Degryse et al., 2009). Accordingly, we must scrutinise the widespread assumption that regional banks decide at a shorter distance to SME customers than large international banks and, in doing so, gain informational advantages and support access to finance for SMEs. Below, we briefly discuss the theoretical considerations on distance, soft information and lending to SMEs (Section 4). Section 5 summarises key findings from a detailed comparison between one savings bank and one nationwide big bank. Finally, Section 6 heuristically categorises banks in Germany with respect to their distance in lending.

4 Theoretical considerations: SME finance, distance and soft information

When lending to SMEs, banks and other lenders face particularly pronounced information asymmetries because SMEs tend to be informationally more opaque compared to large (publicly listed) companies. This is because SMEs are not publicly listed (no price information about bonds or shares exist) and disclosure requirements are lenient. Furthermore, the performance of an SME depends more on a single person (such as the managing owner) and the local market. Accordingly, lenders need private and local information on these firms in order to estimate the risk of credit default (PD). Small and/or regional banks are considered to be better at processing private and soft information and are therefore better at lending to informationally opaque SMEs (Berger et al., 2005; Alessandrini et al., 2009b; Alessandrini et al., 2009a; Behr et al., 2013).

Stein's (2002) model represents the main theoretical foundation to explain regional banks' competitive advantages in SME finance. For Stein (2002, p. 1982), soft information "cannot be directly verified by anyone other than the agent who produces it". "Hence, its transmission within a hierarchical organisation or across distances causes difficulties. In SME finance, soft information typically encompasses assessments of the firm (e.g., the competitiveness of its products, the prospects for the business strategy) and its managers (e.g., their honesty and expertise, the way they react under pressure) and is mainly collected by bank employees through frequent and personal contacts with the borrower over time. In contrast, the transmission of hard information, such as financial statements, payment histories and account information, is not restricted because its meaning and validity does not depend on the actor who collected it[...]"(Flögel, 2018a: 37). Therefore, according to Stein's model (2002), large hierarchical organisations, like large banks, face difficulties in processing soft information and tend to prioritise hard information in decisions.

Unlike large banks, regional banks lend at shorter distances to SMEs, which is one key factor explaining their ability to mitigate information asymmetries and reduce credit rationing to SMEs (Berger et al., 2005; Alessandrini et al., 2009a). According to Stiglitz and Weiss (1981), when banks do not obliterate all information asymmetries, they may instead conduct credit rationing to cope with severe informational

opacities. In other words, banks refuse credit to a group of borrowers, even though the borrowers offer to pay higher interest rates and there are good-quality borrowers (borrowers with low PD) in the group. Consequently, regional banks' enhanced access to information (due to short distance) decreases credit rationing, amplifies lending and reduces the financial constraints on borrowers (Petersen and Rajan, 1995).

According to Alessandrini et al. (2009b), the distance between two actor-pairs matters for bank-based SME lending: first between SME customers and their customer advisors (called the operational distance) and second between customer advisors and supervisors, or head offices (called the functional distance). As Flögel (2018a) argues, the incorporation of distance into Stein's model (2002) implies the following relations: whereas short operational distance makes it easier for customer advisors to access soft information, short functional distance is associated with enhanced bank-internal use of soft information, which encourages local staff to actually collect soft information (Flögel, 2018a). In this context, a purely metric understanding of distance is inadequate for explaining the transmission of information, as short geographical distance is neither a necessary nor a sufficient condition for exchanging knowledge between actors (Boschma, 2005; Torre and Rallet, 2005; Torre, 2008; Bathelt and Henn, 2014). Instead, other forms of closeness such as social and organisational embeddedness and cognitive affinity must be considered before we can fully understand the effect of distance in banking (Uzzi and Lancaster, 2003; Klagge and Martin, 2005; Alessandrini et al., 2009a; 2010). Yet short geographical distance does facilitate the transmission of soft information because it makes face-to-face interaction easier and supports other forms of closeness. Therefore, studies on distance in lending should consider both geographical and non-geographical aspects when analysing the impact of distance on lending to SMEs.

5   Exemplary comparison of the lending processes of a savings bank and a big bank in Germany

An ethnographic approach was taken in Germany to gain detailed insight into how loans were organised, information was used and bank employees interacted in credit decisions at one savings bank and one big bank. In particular, Franz Flögel completed a two-month, full-time student internship in different departments of the savings bank (the SME customer advisor team, the back office and the bank control department). We conducted six interviews at the big bank that yielded extensive information about a customer advisory team that is located in the same region as the savings bank. The savings bank that we studied tends to exemplify a typical average-sized savings bank in terms of lending and the number of branches, with high business continuity. The big bank is one of the four German big banks. It conducts business in many areas (such as private wealth management and investment banking) and has branches throughout the country and abroad. In particular, we studied the SME customer advisor teams of both banks, which serve smaller business clients, meaning those with revenue between €500,000 and €10 million and total business credit of between €100,000 and €5 million. This represents the medium-sized SME segment of the savings bank and the small business customer segment of the big bank, which applies a slim lending process organisation for such clients. Therefore, and considering the fact that we saw firms with loans from both banks, the two units directly compete for the same SMEs, although they potentially differ in terms of the (spatial) organisation of their lending. The results of the detailed comparison are already published in Flögel (2018a)[6]. This section provides a summary of that publication.

5.1   Rating systems and the allocation of credit-granting authority

Understanding the role of rating systems in modern banks' lending decisions is crucial because rating systems can withdraw decision-making power from (local) bank employees (Leyshon and Thrift, 1999).

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[6] This section does not quote directly from Flögel 2018a in the interest of readability.

Moreover, when rating algorithms consider soft information, then the rating systems potentially obviate the influence of functional distance in lending to SMEs and thereby call the key argument for regional banks into question.

In both banks studied in depth, the bank employees input soft information in the rating process by answering closed questions in the rating programmes. Determining the exact weight of soft information was impossible because banks keep their rating algorithms confidential. In accordance with Theis (2009: 100), the qualitative data-rating module of StandardRating (which all savings banks use for SMEs) accounts for 50% of the rating score. However, the rating considers account behaviour and other hard information in the qualitative module; hence, the impact of soft information on the rating score tends to be limited. For example, eight questions about the qualification of management and timeliness of reporting have been added to the StandardRating qualitative data module for commercial clients (SMEs with revenue of less than €2.5 million). The big bank that we studied assigns great weight to account behaviour and credit bureau information, whereas financial figures tend to be less important compared to savings banks (supraregional bank, 25th September 2013, interview). Considering the light weight of soft information for rating results, the rating systems tend to play a limited role in transferring soft information across functional distance. Two additional facts support this conclusion. First, soft information is often very context-specific and firm-specific and therefore resists evaluation by rating algorithms. Second, it has been demonstrated that customer advisors manipulate rating inputs to generate scores above banks' cut-off limits (Berg et al., 2013). Since the verifiability of soft information is restricted, a preponderance of soft information would make rating algorithms prone to such manipulation.

Table 4 summarises the credit granting authority allocation of the contrasted banks in relation to firms' rating scores for total business credit of up to €5 million. At both banks studied, the customer advisors (of the branches) have the right to refuse credit from the start. They decide whether or not to process a request for credit from their customers in the first place. Only if they submit a credit application can their high-level supervisors get involved in lending decisions (and be informed of the credit requests). At the savings bank, the riskier the SME in terms of rating score and (uncovered) credit volume, the more employees become involved in credit decisions at higher levels. In contrast, the big bank entirely separates supervisors from any such credit decisions in line with its strategy of a slim credit-granting process. Whereas the savings bank defines no rating score cut-off or limit for the explicit purpose of maintaining flexibility in credit decisions, the big bank defines a strict threshold. Regular credit-granting above the PD threshold of 3.6% is prohibited and no official escalation-proceeding involving supervisors exists, although one customer advisor we interviewed indicated that there are unofficial proceedings for exceptional cases.

For firms with sound rating scores (PD < 2.1%), the customer advisors at the big bank wield unrestricted decision-making authority of up to €1 million (supraregional bank, 25th September 2013 and 11th February 2014, interviews). In these cases, there is no credit officer to regularly check how the credit application was submitted and the rating was obtained. Only credit with a medium rating score (PD 2.1%-3.6%) and credit above €1 million is considered risk-relevant and requires the credit officers' second vote. In one interview, a team leader from the big bank estimated that approximately 50% of customers are non-risk relevant (supraregional bank, 25 June 2013, interview). This slim credit-granting process produces the counterintuitive result that the big bank decides on about half of all credit applications from SMEs at a shorter functional distance than would be the case at the savings bank, because in the big bank's non-risk-relevant lending business, only customer advisors make the lending decisions. Accordingly, differences in functional distance to the back offices of both compared banks only potentially influence lending decisions in cases with medium rating scores, as that is when credit officers become involved in big bank's lending to SMEs.

Table 3: Comparison of the credit authorities of the savings bank and the big bank

	Savings bank*						Big bank*						
	Back office	Market / front office								Back office			
Rating score	*Not relevant*	*PD < 0.4%*	*PD 0.6 – 2.0%*	*PD 3.0% – 6.7%*	*PD > 6.7%*		*PD < 2.1%*	*PD 2.1% – 3.6%*	*PD > 3.6%*	*PD < 2.1%*	*PD 2.1% – 3.6%*	*PD < 3.6%*	
Joint board of CEOs	-	More	More	More	More	**Joint board of CEOs**	-	-	-	-	-	-	-
CEO (back office)	Escalation-procedure	€1.5m	€1.5m	€1.5m	€1.5m	**CEO (market)**	-	-	-	-	-	-	**CEO (back office)**
Department head (back office)	Second vote from €250T	€900T	€900T	€900T	€900T	**Department head (market)**	-	-	-	-	-	-	**Department head (back office)**
Team leader (back office)	Only in case of absence	€600T	€400T	€300T	€150T	**Team leader (market)**	Unofficial escalation-proceeding			-	-	-	-
Credit officer	No vote Compilation of credit application / review of calculation	€200T	€100T	€50T	€25T	**Customer advisor**	€ 5m	€ 5m	Rejected	Second vote from €1m	Second vote	Rejected	**Credit officer**

*Limits respect the uncovered credit volume of all corporate and private credit of the borrower. The employees of the savings bank wield higher credit-granting authority for covered credit volume, whereas collateralisation does not affect the big bank's allocation of authority.
T= thousand; m= million
Source: Flögel, 2018a: 48

5.2   Functional distance

In MaRisk, Germany banking regulations require a review of risk-relevant credit decisions (second vote) from the market department's detached back-office that conducts the risk analysis. From an organisational perspective, the division of back-office work is rather low in the savings bank. Except for the disclosure of financial statements, one team conducts all back-office work. In addition to the second vote, back-office work encompasses many administrative and reviewing tasks, which also give credit officers influence over lending decisions in the non-risk relevant credit business where a second vote is not required. Working in paired teams, each credit officer is in charge of one customer advisor and his or her clients at the savings bank (regional bank, 14 November 2013, protocol). Geographical distance between the back-office department (located in the head office) and the observed customer advisor team (located at a major branch of the savings bank) inhibits ad hoc meetings. As a consequence, team partners use the telephone for verbal communication.

It was observed that customer advisors make daily phone calls to their credit officers using informal language at the savings bank. Communication is also based on written documents (such as work instructions and calculations) and ICTs (regional bank, 18 November 2013, protocol). For example, credit officers approve of the ratings produced by customer advisors by clicking a button in the StandardRating programme (regional bank, 11th December 2013, protocol). Taking all means of communication together, a substantial and on-going flow of information between the customer advisor and credit officer partners was observed at the savings bank.

The fixed pairwise cooperation, the long-term character of the cooperation and the mutual dependence of customer advisors and credit officers resulting from this organisation lead to social embeddedness based on experience. As one customer advisor expressed it, "she knows what she can but also what she cannot expect from her credit officer" (regional bank, 11 November 2013, protocol), an allusion to slow processing speed due to illness among bank employees at the time of observation. Overall, functional distance to the credit officers appears to be short at the savings bank we observed because of organisational (pairwise long-term cooperation) and resulting social embeddedness.

In contrast, the big bank studied in depth applies a higher (spatial) division of back-office labour, splitting work between administrative and risk-analysing back offices (supraregional bank, 25 September 2013, interview). One back-office department, located in a major German city, is in charge of all second votes in the SME segment we studied and processes credit applications randomly. No pairwise cooperation with customer advisors exists (big bank, 11 February 2014, interview), so functional distance tends to be longer in the big bank studied, not only in geographical terms but also and especially in terms of a lack of organisational embeddedness. The customer advisors we interviewed reported difficult communication with the back office because they do not know the colleagues personally and do not know which credit officer will evaluate their credit applications. Although communication is not restricted solely to the credit application (though the big bank considers it undesirable, e-mail and telephone discussions with the back offices do take place), specific circumstances and complex issues, meaning soft information, are difficult to transmit to the back office (supraregional bank, 11 February 2014, interview). This is compounded by the fact that the division of labour restricts credit officers from performing administrative tasks and the random and nationwide processing of credit applications hinders the accumulation of information on clients and regions at the big bank. In contrast, the credit officers at the savings bank co-create information on SMEs in their routine work as they are involved in daily administrative dealings with clients. This observation also suggests more cognitive affinity between credit officers and customer advisors than is possible at the big bank.

5.3   Influence on lending decisions

In order to understand the impact of the aforementioned differences in the allocation of credit-granting authority and functional distance on lending decisions, we need to consider the role of soft information

in lending decisions. Here the participant research, meaning our observation of real lending decisions at the savings bank, made it clear that soft information decidedly influences the granting of credit to SMEs when hard information presents an inconclusive but not "hopeless" picture of the customer. In one case, the employees of the savings bank debated a managing owner's integrity because of negative hard information (accounts were under forced administration and debit notes had been returned (regional bank, 19 November 2013, protocol)) and considered withdrawing the mortgage agreement. After a face-to-face discussion, the customer advisor decided to continue lending. She explained the decision as resulting from her gut feeling about the owner's integrity and her conviction that the owner's main bank had contributed to the liquidity difficulty. Her explanation was accepted by the supervisor in charge of the lending decision at the savings bank (regional bank, 3 December 2013, protocol). In other cases, soft information about clients' business and private affairs (regional bank, 20 and 29 November 2013 protocols) helped in the interpretation of suspect financial figures.

The case of a consumer goods importer demonstrates the context-specific enhancement of hard information by considering soft information. The firm operated at a considerable profit and borrowed a large current account credit line from the savings bank, where an experienced customer advisor had maintained a close business relationship with the client for over 10 years. The client became financially distressed because the owner had to pay money to his ex-wife after they divorced, which, in addition to his high standard of living, over-consumed the firm's surplus. Furthermore, at the very same time, the firm's liquidity needs increased because of increasing sales resulting in extensive unauthorised overdrafts of the current account credit line, thereby deteriorating the firm's rating score. Soft information mattered in this situation. First, the customer advisor was well aware of the managing owner's expensive lifestyle and knew that the firm could improve surplus through thrift (regional bank, 19 December 2013, protocol). Here, the customer advisor's soft information made a difference because an extension of the credit line would have been acceptable on the basis of hard information, meaning that the firm's financial statements indicated sufficient available cash to service the debt, whereas in reality that cash was being consumed by the owner's expensive lifestyle. Second, the borrower's actual default risk was lower than predicted by the firm's rating because the owner obtained financial support from his relatives and the savings bank knew the relatives' financial situations because they were also customers (regional bank, 20 November 2013, protocol). Both pieces of soft information made a difference because, aware of the managing owner's spending habits, the customer advisor refused to increase the debt with the intention of improving the firm's long-term financial stability. Her refusal is all the more remarkable because the CEO of the savings bank also recommended a credit line extension (regional bank, 9 December 2013, protocol). Therefore, the example also suggests that close customer relationships do not necessarily imply soft budget contract problems, or uncritical fulfilment of customers' financial requests. Rather, the customer advisor we observed invested great effort, as she worked on the case almost every working day to accomplish a long-term financial solution.

Overall, clear positive hard information tends to lead to positive lending decisions and definite negative hard information prompts credit rejections regardless of soft information. Thus, soft information decidedly influences lending if hard information is inconclusive, such as in cases of financially distressed SMEs, which also leads to inferior rating scores. However, in precisely these cases the big bank's rating-dependent allocation of credit-granting authority causes substantial functional distance for medium-rated firms (as the distant back office must approve the credit request) or prompts the rejection of credit applications from SMEs with poor rating scores (due to the rating score cut-off limit). This process organisation should discourage the consideration of soft information, in line with the modified Stein model (2002) (Section 4). In contrast, employees of the savings bank can and do take soft information into consideration (as the customer case indicated) because the rating scores do not determine lending decisions and decision-makers in the front and back offices operate at shorter functional distances than the credit officers at the big bank. Therefore, the regional savings bank considers soft information more often when deciding on offering credit to SMEs with critical ratings than is possible at the big bank, which suggests a reduction of credit rationing according to the Stiglitz and Weiss model (1981).

6   Classification of banks

In order to gain a overall picture of distance in lending with respect to regional and supraregional banking groups in Germany, this section discusses the place of credit decision-making and develops a heuristic classification of banks with respect to their operational and functional distance. Figure 10 illustrates the distance classification taken from the qualitative empirical results, especially the outcome of the 40 expert interviews conducted from 2012 to 2014. In addition to the qualitative data, the quantitative findings presented in Section 3, especially the SCI, informed the heuristic classification presented here. Two clusters of banks and financial groups can roughly be identified—short-distance banks and long-distance banks—though considerable differences exist, especially within the long-distance cluster.

The savings banks and most cooperative banks make up the bulk of the **short-distance cluster**. These approximately 1,400 institutes are typically regional banks in terms of geographical market orientation and therefore tend to be the backbone of decentralised banking in Germany. In addition, some privately owned regional banks exist, like NATIONAL-BANK, operating in and around the city of Essen, which potentially also belong to the group of short-distance banks (Gärtner and Flögel, 2017a).

In terms of operational distance, with 13,183 branches overall, the savings banks operated the most dense branch network in 2013, followed by the cooperative banks (12,622 branches) (Table 1, p. 8). In contrast, the four big banks ran 7,614 branches, which suggests longer operational distance. However, our qualitative inquiry showed that regional and big banks only have specialised customer advisor teams for SMEs in select branches. Apart from very small business customers (with business loans of less than €100,000) who are served in every branch by "ordinary" customer advisors for private clients, SMEs face longer operational distance than the number of branches would suggest (see also Gärtner and Flögel, 2017a). For example, the savings bank that we studied in detail has two SME customer advisor teams, one in the head office and one at a major branch; and the big bank has one SME team in charge of SME customers in the same municipality as the savings bank and two neighbouring municipalities (supraregional bank, 25 June 2013, interview). As a result, operational distance for customers of the big bank tends to be longer, even though not even savings banks maintain a local supply of specialised SME teams at every branch, but concentrate specialists in major offices.

Figure 10: A heuristic classification of distance in SME finance of the categories of banks and financial groups in Germany
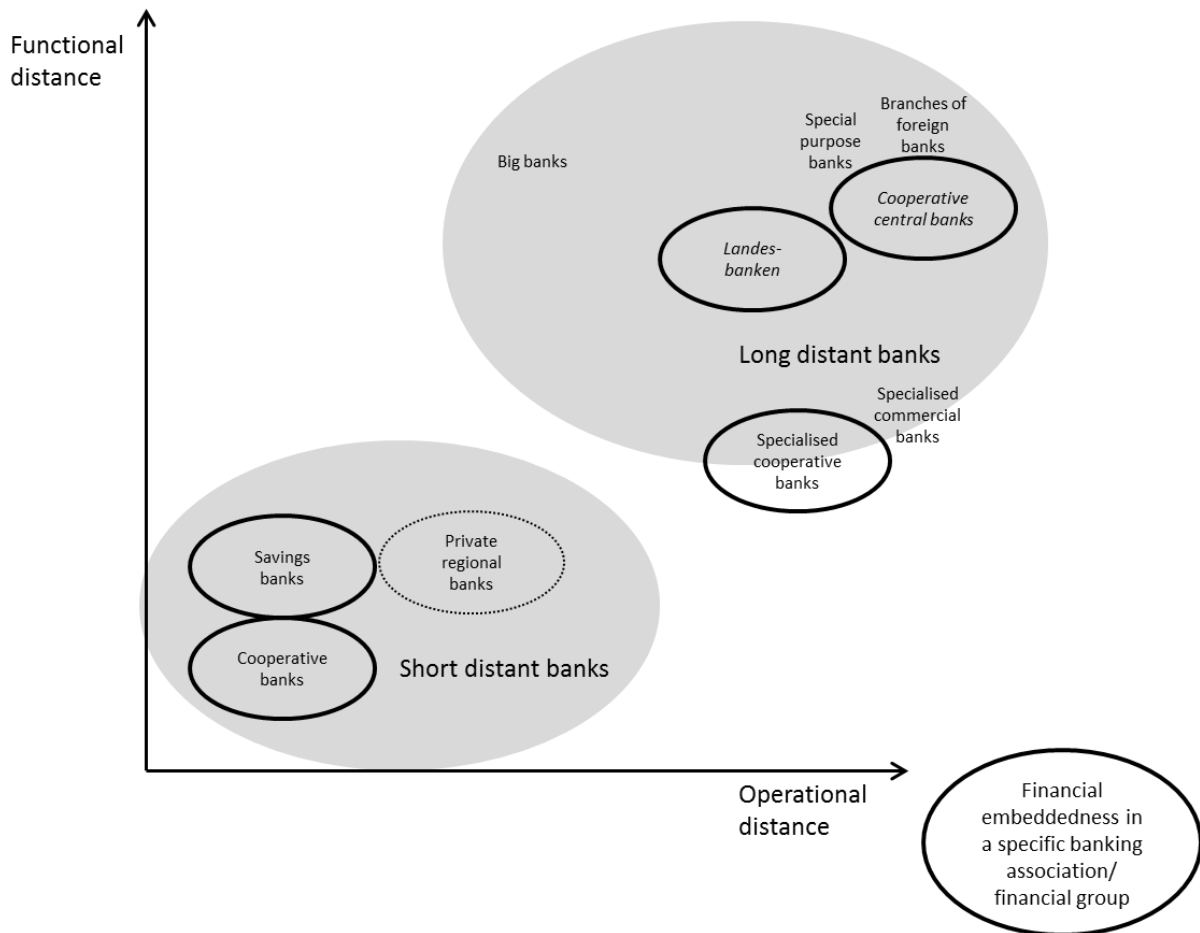
Authors' figure

The operational distances of the savings bank and the big bank tend to be comparable in non-geographical terms. SME clients have a designated customer advisor (also called a customer relationship manager) and both banks seek to form and maintain main banking relationships with sound firms (Flögel and Zademach, 2017). Nevertheless, differences in the micro-geographical arrangement of branches have been identified for the savings bank and the big bank that were investigated in depth. These differences potentially make the customer advisors less accessible to the clients of the big bank and may influence the responsiveness of customer advisors to clients with financial needs (see Flögel, 2015; Flögel and Zademach, 2017).

Functional distance to back officers and high-level supervisors are considered short at the savings bank that we studied in detail, as shown above (see for a detailed discussion Flögel, 2018b). Interview results from other regional banks generally confirmed smooth cooperation and easy communication with the back offices and supervisors (savings banks, 8 August, 24 September, 25 September and 25 October 2013, interviews), as regional banks are "houses with short paths" (regional bank 24 September 2013, interview) and back-office colleagues and supervisors always know each other personally. In this respect, none of the five regional banks where we conducted interviews (four savings banks and one cooperative bank) applied strict rating limits for decisions to lend to medium-sized SMEs. This is not to deny that these regional banks also define PD limits where new lending should be avoided (savings banks, 13 May, 18 August, 24 September, 25 October 2013, interviews). Overall functional distance to the back office and (high-level) supervisors tends to be short in regional banks, whereby the precise length of functional distance depends on the lending process organisation and most likely differs substantially between the regional banks.

The third criterion of Figure 10 (embeddedness in a specific banking association and/or finance group) is obvious for savings and cooperative banks, as they are strongly embedded in their finance groups. Interestingly, NATIONAL-BANK also uses the same rating system as the cooperative finance group because it better suits the local retail business of this regional bank than the rating solutions offered by the BDB (BDB, 11 March 2015, interview).

As shown in Figure 9 (p. 23), around 46.4% of all loans to non-financial firms were issued by savings and cooperative banks in 2015. Taking into consideration that not all cooperative banks belong to the short-distance cluster and noting that some private banks can also be considered as lending to customers at short distances, it can be estimated that about 50% of all loans to non-financial firms originate from decentralised banks in Germany. This share may even be higher if one considers that Landesbanken and especially special purpose banks, like the development bank KfW, predominately lend to SMEs via their Hausbanken. Special-purpose banks lent €71.456 billion to non-financial firms in 2015, which accounts for 6.1% of all loans that year. This lending would to a large extent have been granted on behalf of the savings and cooperative banks, which screen and monitor SMEs and also keep a proportion of the default risk[7].

The heterogeneity of banks in the **long-distance cluster** tends to be higher than in the short-distance cluster. We have classified big banks, Landesbanken, cooperative central banks, special-purpose banks, international banks, specialised commercial banks and specialised cooperative banks as long-distance banks.

Starting with operational distance, the four German big banks tend to be situated in a medium position in terms of operational distance due to their relatively dense branch networks and their attempt to maintain personal relationships with SME customers. Landsbanken, cooperative central banks and special-purpose banks operate at long operational distances to customers (for example, they only ran 485 branches in Germany in 2013, of which the Landesbanken ran 443 branches[8] (Table 1 p. 8). As indicated above, the bulk of lending to firms by these categories of banks is mediated by the Hausbanken of the SMEs (such as subsidised loans and syndicated loans), so direct and personal contact with SME customers is not necessary. With 245 branches, each of the banks in the "branches of foreign banks" category runs two branches on average. Our interview with one large foreign bank clarified that it only targets select clients, meaning wealthy individuals and large companies, which is why no dense branch network is needed (supraregional bank, 1 July 2013, interview).

With regard to SME finance, the "regional banks and other commercial banks" category is considerably important. Aside from "real" regional banks, Bundesbank statistics classify specialised private banks under this category and some of them lend to SMEs. For example, SEB, the German subsidiary of the bank Skandinaviska Enskilda Banken, conducts business with large-scale cooperation and "demanding medium-sized enterprises" (www.sed.de). One customer advisor of a specialised private bank targeting medical freelancers, like physicians and dentists, explains how their SME business "without a branch" works. The bank gains contacts to customers via agents, meaning regional business consultancies that support the start-ups of resident physicians and dentists, operating in different market areas. Accordingly, customer advisors visit their geographically distant customers only once per year and do not need a permanent presence in the local markets. Instead, they gain initial contact via specific networks (such as business consultancies) (private bank, 29 May 2013, interview). A few cooperative banks, like GLS (a bank for sustainable investment) and Deutsche Apotheker- und Ärztebank (a bank for medical professionals), tend to operate in a similar way. For example, GLS, which has its headquarters in Bochum, conducted business in Germany and abroad with only seven branches as of 2017. However, they have specific networks, for example for organic farming, alternative schools and alternative housing, and target new customers through these networks. Accordingly, we have categorised this kind of bank as operating at rather long operational distances (compared with regional cooperative banks).

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[7] The precise effect is unclear, however, as supraregional Hausbanken also grant subsidised credit from the special-purpose banks, though qualitative results suggest that regional savings and cooperative banks are more active in this kind of lending (banking expert, 1 March 2013. interview)

[8] For the Landesbanken, the number of branches is considerably lower than 443, because due to their functionality, some savings banks, like the Braunschweigische Landesparkasse with more than 100 branches, belong to the category of Landesbanken as they are owned by the Landesbanken.

As exemplified by the big bank studied in detail, the functional distance of big banks tends to be substantial. However, these banks also delegate lending decisions to local branches. Accordingly, the borrowers' characteristics determine whether big banks decide at short functional distances or not. In this context, our in-depth analysis indicates that the riskier a borrower is in terms of rating score and credit volume, the more likely it is that big banks will make credit decisions at long functional distances. This process organisation is logical because lending to riskier borrowers requires careful consideration. Still, it comes at a certain price as big banks face more difficulties in considering soft information in lending decisions where soft information matters most (Section 5; Flögel, 2018a; 2018b).

Special-purpose banks, as well as Landesbanken and cooperative central banks to a certain extent, do not conduct the total screening and monitoring process in SME lending, but delegate those tasks to the Hausbanken. For example, KfW takes the ratings computed by the Hausbanken for subsidised lending rather than generating its own ratings. KfW and other special-purpose banks define thresholds (referring to hard information, like ratings, collateral, the borrower's sector, the geographical region) for each of their subsidised credit programmes. If the borrower meets the criteria, the lending decision is delegated to the Hausbanken, which usually also have to bear part of the default risk (banking expert, 1 March 2013, interview). Specialised banks are classified as having medium functional distance because of their smaller size compared to large banks, though their lending process organisation was not analysed. Finally, we assume that branches of foreign banks decide on SME credit at the longest functional distances because their head offices are abroad. However, no qualitative evidence on the lending process organisation of these banks is available.

With this categorisation, the long functional distance cluster is similar to the category of supraregional banks that lent 35.4% of all credits in Germany. Supraregional banks have lost market share since 1999 at the expense of regional (short-distance) banks (Figure 9, p. 23). The bank category of regional banks and other commercial banks was not considered in the credit volumes of short- and long-distance banks because, as shown, banks from this category belong to both clusters. Disaggregating this category of banks into decentralised and centralised banks would be illustrative as these banks have increased lending since 1999 and accounted for a credit volume of €142.041 billion in 2015 (Figure 9, p. 23), overtaking the loans of the four big banks by €18.779 billion. Nevertheless, disaggregating this category of banks is empirically difficult because of the heterogeneity of the banks and business models. For example, we have found banks that operate all across Germany with hardly any branches; hence the location and number of branches provide only limited information about the places of decision-making of these banks.

D The future of decentralised banking in Germany

The persistence of decentralised banking is at risk, even in Germany. The measures used to curb the financial crisis challenge decentralised banks in particular, especially the ECB's expansive monetary policy (which drives low interest rates) and the Basel III banking regulations (Gärtner and Flögel, 2017b). Since they are decentralised universal banks, savings and cooperative banks collect savings in their region and lend the collected money as loans in their region. This business model has been challenged for several years by decreasing customer loyalty, increasing competition (as a result of the market entry of foreign banks), digitalisation and disintermediation (such as small scale bonds, peer-to-peer lending and other FinTech products). Competitive pressure is also growing in the SME segment as big banks have (re)discovered its profitability. In this context, the expansive monetary policy that causes low interest rates poses a special challenge to decentralised banks. Figure 13 shows the comparatively high interest surplus of savings and

cooperative banks compared to the four German big banks. It also suggests that the interest surplus depends on the interest rate environment, as low interest rates, measured in risk-free German government bonds (Umlaufrendite), correlate to the interest surplus of the banks. The interest surplus of the savings and cooperative banks accounted for about 80% of their earnings, while big banks only attained 61% in 2013 (Deutsche Bundesbank, 2015a). Therefore, the low interest rate environment stresses the regional banks disproportionally.

Figure 11: Interest surplus of the categories of banks
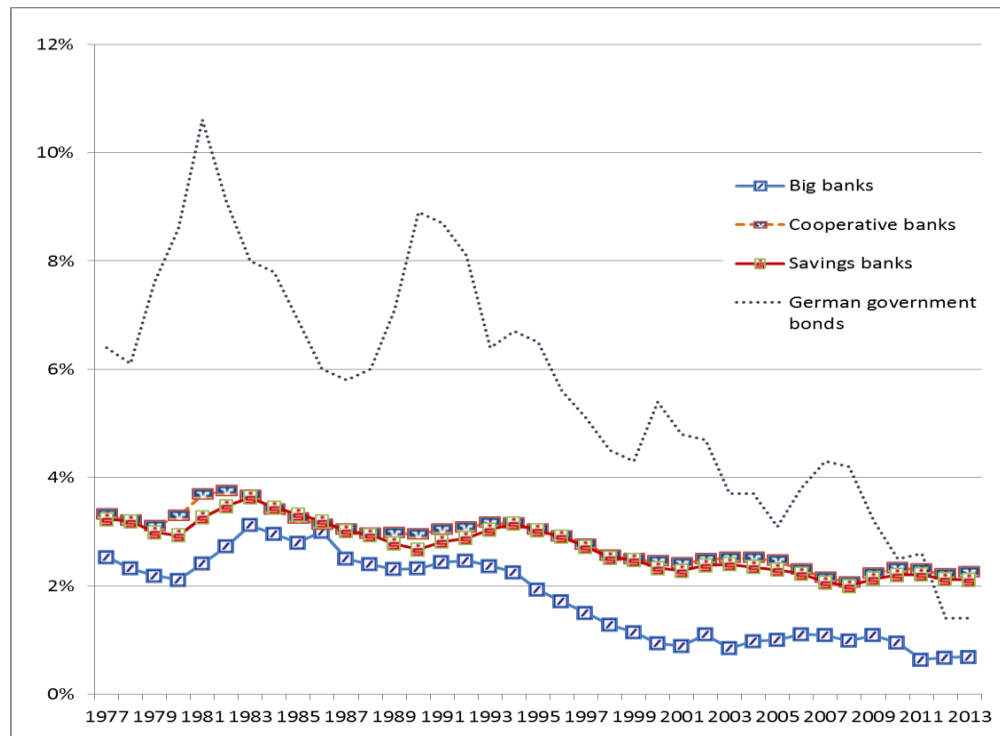
Source: Gärtner and Flögel 2017b: 54 (translated)

In addition, long-term low interest rate environments involve the risk associated with changing interest rates, which is also known as the interest rate risk (BaFin, 2012). If interest rates in the saving business rise faster than in the lending business due to the shorter durations in the former, the profitability of lending is challenged. Interest rate risk particularly affects banks whose main source of income is the interest surplus, or net interest income, as well as those that heavily engage in maturity transformation and do not hedge interest rate risks through derivatives (Sachverständigenrat, 2013: 236). Furthermore, low interest rates push savers to alternative investments, which contribute to disintermediation at the expense of the traditional Hausbanken. This push can be seen in an increase in corporate bonds for SMEs, although SME bonds are still less important in international comparisons (Horsch and Ueberschär, 2013; Ueberschär, 2013; Gischer, 2015). Disintermediation may be desired and even supported by regional banks because they try to compensate for their declining interest income with commission income. However, in the medium term, the low interest rate environment jeopardises regional refinancing, meaning regional saving-investment cycles.

Basel III (i.e. EU Capital Requirements Directive IV) also tends to negatively affect decentralised banking. The quantitative requirements on equity capital are less critical, as are the extensive disclosure requirements, such as liquidity monitoring. For these disclosure reports, the decentralised banks are hardly able to realise economies of scale due to their smaller size (Alessandrini et al., 2016; Schiele et al., 2017). This leads to the following two dilemmas for decentralised banks:

Dilemma 1: Disintermediation versus regional savings-investment cycle. Low interest rates encourage savers to seek out alternative investments. Savings and cooperative banks support this trend by marketing investment funds in order to increase their commission income, for example. This approach is rational, since decentralised banks can hardly invest the large deposits profitably and must balance interest rate risk. However, this also promotes disintermediation at the expense of the lending traditionally done by the Hausbanken.

Several trends endanger the current availability of cheap savings, especially in economically weak regions. The redistribution of capital in favour of the weak regions and their decentralised banks will decrease in the medium to long term. Particularly noteworthy is the general lowering of the statutory pension level in combination with individual pension reductions, which will be significant in the future in eastern Germany because of non-continuous employment histories. This means that less money can be saved, and there is a risk that decentralised banks will no longer be able to attract enough regional (low-interest) savings, particularly in weak regions (Gärtner, 2015). Savings banks and cooperative banks had the largest savings surpluses in the less affluent regions (Section 1.1) and could therefore consider the projected decline in savings as a welcome adjustment to the low interest rate environment. However, this strategy is risky as it increases dependence on bond and interbank markets. Hardie and Howarth (2013a) argue that deposit-based refinancing is crucial for banks in order to maintain lending autonomy. As the insolvency of Northern Rock (Shin, 2009) and the problems of the Spanish savings banks have shown, institutional investors watch banks' investments and lending very closely and can exert a strong influence by withdrawing money (e.g. bank bonds, interbank lending). The same is true of the ECB's monetary policy, although the ECB follows different objectives in financing banks than private investors. Thus, regional refinancing and the regional savings-investment cycle are the constitutive elements of decentralised banking, which also ensures the local decision-making authority of regional banks.

Dilemma 2: Cost pressure versus local decision-making authority. Given the aforementioned challenges, decentralised banks try to save costs by closing branches, by merging to bigger units and by standardising (lending) processes (Riese, 2006; Schreiber, 2015). From 2016 to 2017, the number of savings banks fell further by 17 banks to 391 and 7.9% of savings banks branches were closed down between 2015 and 2016. Cooperative banks also shut down 6% of their branches between 2015 and 2016 and reduced the number of institutions by 59 to 917 between 2016 and 2017 (Deutsche Bundesbank, 2017a; 2018). These cost-saving measures have certainly influenced the local decision-making authority of regional banks. While branch closures increase operational distance, mergers stretch functional distance. Standardisation also makes it harder to consider soft information, meaning that it stretches functional distance.

As shown in Part C, despite standardisation, regional banks tend to lend at shorter distances than large banks when soft information matters most, meaning when they lend to financially distressed SMEs (Section 5). Therefore, they can and do consider soft information in such lending decisions, which tends to reduce credit rationing to (financially distressed) SMEs (Flögel, 2018a)[9]. However, when considering the two aforementioned dilemmas, one must question the soundness and profitability of the regional banks' business model.

First, one should ask whether savings banks reduce credit rationing with successful screening and monitoring on the basis of soft information, or if they accept higher credit defaults in line with their public mandate to support the regional economy. As a coarse indicator for screening and monitoring success, Figure 12 displays the percentage of non-performing corporate loans of the savings bank and big bank investigated in detail. The banks had comparable ratios of non-performing loans in 2010 and a substantially lower ratio for the savings bank in 2013 (3.96% for the savings bank compared to 5.38% for the big bank). This indicator is a coarse one, because it includes all corporate loans and the investigated SME segment only represents a proportion of the corporate loan portfolios, especially for the big bank, which also lends to

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[9] This section does not provide direct quotations from Flögel 2018a in the interest of readability.

large corporations. Nevertheless, as lending to larger companies is associated with lower default rates than lending to smaller ones, the savings bank's lower proportion of non-performing corporate loans in fact suggests that its screening and monitoring efforts are successful when it lends to SMEs.

Figure 12: Ratio of non-performing loans to firms and the self-employed
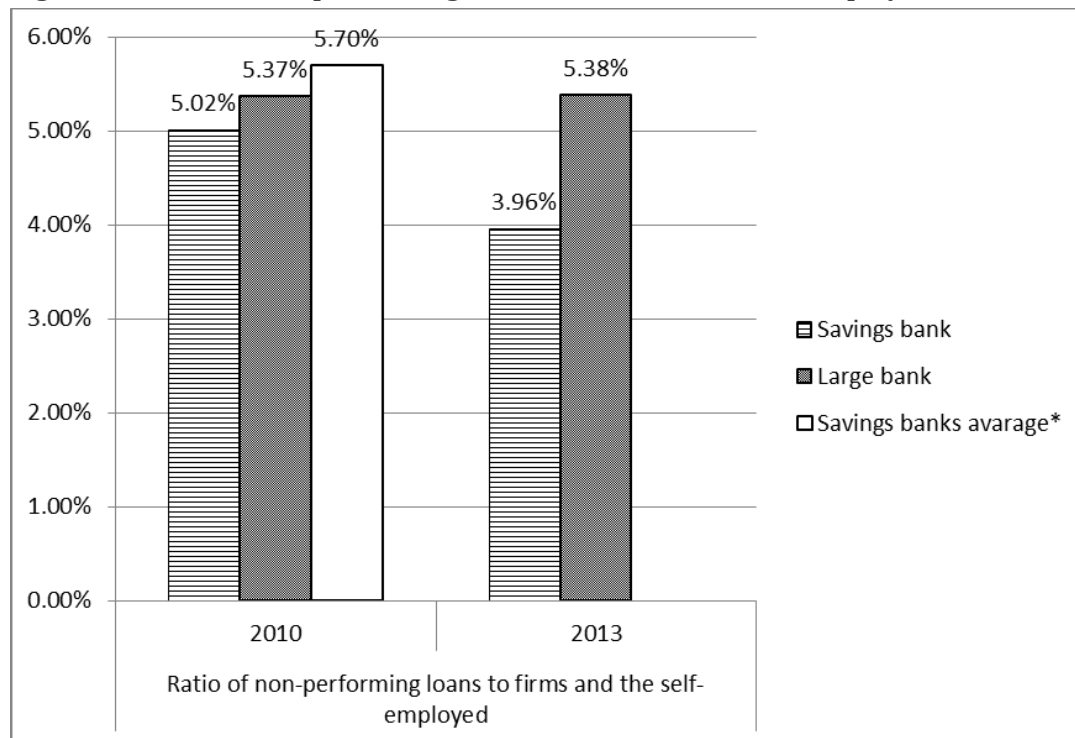
Source: Flögel, 2018a (*cited in Christians and Gärtner, 2014)

Second, the extensive credit-granting process organisation of the savings bank that we investigated in detail implies substantial transaction costs, considering the effort that the savings bank exerts for financially distressed clients and the range of employees involved in lending decisions (see Section 5). Although short functional distance is associated with lower agency costs (Papi et al., 2017), the large bank was seen as controlling agency costs with a slim and hard information-based process organisation, meaning the standardisation of its SME lending processes, for the explicit purpose of making lending decisions more cost efficient. Nevertheless, empirical studies have proven the soundness of the German savings banks' business model in terms of profitability and stability (Ayadi et al., 2009; Beck et al., 2009; Behr et al., 2013). In this context, the example of the consumer goods importer (introduced above) indicates the earning opportunities for the savings bank by serving financially distressed SMEs. Interest earnings accrue on the customer's current account credit line of 12% (the standard terms of the savings bank), plus 4% for overdrafts (which he frequently uses). The borrower's actual default risk tends to be lower than predicted by his rating score, as the savings bank is aware of the financial support available from his relatives.

In general, this customer case indicates the savings bank's ability to capitalise on soft information by identifying good-quality borrowers (borrowers who will service debt) among the group of SMEs with computed high default risk according to their ratings. Since the ratings influence credit terms, due to the risk-adjusted pricing, banks that do a better job at screening and monitoring customers on the basis of soft information (not considered in the rating algorithms) gain extra profits. Note in this context that according to Handke's (2011) study on relationship banking in Germany, financially sound SMEs also tend to accept more expensive credit terms in anticipation of the implicit liquidity insurance for financial difficulties associated with regional Hausbanken. Thus, higher earnings potentially explain the profitability of the savings banks' business model regardless of the substantial transaction costs that are incurred when serving financially distressed SMEs. Apparently, lending to informationally opaque (financially distressed) SMEs is less

sensitive to a low interest rate environment because competition for these SMEs is low and the risk-free interest rates only account for a very small proportion of the interest these clients have to pay.

In summary, regional banks face considerable challenges due to tightening (more complex) banking regulations and the current low interest rate phase. It is becoming clear that regional banks are reacting with typical cost-cutting instruments like mergers, branch closures and standardisation. As we have demonstrated, regional banks can use soft information to profitably lend at short distances to informationally opaque SMEs, meaning SMEs that appear very risky when considering hard information only. Accordingly, short distance tends to be a key competitive advantage of regional banks, especially in a low interest rate environment. Cost-cutting measures must be implemented bearing this short-distance advantage in mind. Furthermore, branch closures may be less critical for lending to SMEs than mergers and the standardisation of lending decisions because, as we have demonstrated, most branches are simply not involved in lending to SMEs.

Acknowledgements

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List of Interview Partners

Banking business consultancy, 5 February 2014, telephone interview: employee

Banking business consultancy, 7 February 2014, interview: partner

Banking business consultancy, 23 October 2013, interview: partner

DSGV education provider, 14 June 2013, interview: head of the school

DSGV, 4 March 2013, interview: banking expert

DSGV, 16 March 2013, interview: banking expert

Federal Ministry of Economy, 1 March 2013, interview: banking expert

Frankfurt school of finance and management, 30 August .2013, interview: academic expert

Frankfurt school of finance and management, 30 August 2013, interview: academic expert

IT provider firm of the DSGV, 30 Mai 2013, interview: employee

Regional bank, November 2013 – January 2014, protocols, participant observation.

Regional bank, 1 October 2012, interview: CEO

Regional bank, 2 September 2013, interview: employee

Regional bank, 18 August 2013, interview: employee

Regional bank, 18 March 2013, interview: employee

Regional bank, 18 March 2013, interview: employee

Regional bank, 18 March 2013, interview: employee

Regional bank, 18 March 2013, interview: employee

Regional bank, 18 March 2013, interview: employee

Regional bank, 22 October 2012, interview: employee

Regional bank, 23 February 2014, interview: employee

Regional bank, 23 Mai 2012, interview: employee

Regional bank, 24 October 2013, interview: employee

Regional bank, 25 October 2013, interview: employee

Regional bank, 25 September 2013, interview: employee

Regional bank, 28 January 2014, telephone interview: employee

Ruhr University Bochum, 24 June 2013, interview: academic expert

Supraregional (cooperative) bank, 9 June 2013, interview: employee

Supraregional (cooperative) bank, 12 September 2014, interview: CEO

Supraregional bank, 1 July 2013, interview: employee

Supraregional bank, 11 February 2014, interview: employee

Supraregional bank, 11 March 2013, telephone interview: employee

Supraregional bank, 11 September 2013, interview: employee

Supraregional bank, 13 February 2014, interview: employee

Supraregional bank, 23 April 2013, interview: employee

Supraregional bank, 25 June 2013, interview: employee

Supraregional bank, 25 September 2013, interview: employee

Supraregional bank, 27 November 2012, interview: employee

Supraregional bank, 29 May 2013, interview: employee

Supraregional bank, 5 November 2012, interview: employee