# GREEN SMES AND ACCESS TO FINANCE

## THE ROLE OF BANKING DIVERSITY

2° Investing Initiative

Inquiry: Design of a Sustainable Financial System

# EXECUTIVE SUMMARY

**The cost and availability of capital act as a key constraint to financing the small green economy.**

SMEs account for 99% of all European businesses, 58% of gross value added and two in three employees (EC, 2014). SMEs arguably play an even more prominent role in the green economy. The extent to which SMEs deliver on the promise of contributing to the green economy hinges at least in part on their access to finance. The ECB European SME survey suggests access to finance is seen as the second most pressing problem for SMEs, behind finding customers.

**The banking sector is the largest source of capital for SMEs. Across Europe, the banking structure exhibits significant differences in terms of bank ownership**

The banking sector is the largest source of capital for SMEs. Mapping the nature of the banking system, in particular its structural indicators and lending activity, is thus the first step to understanding how the banking sector can deliver this financing. The banking sector can be divided into three major categories of banks, within which in turn specific types or sub-categories can be identified. These three categories are commercial banks, cooperative banks, and public banks, notably savings banks. The relative prominence of each category of bank in European domestic banking sectors varies significantly.

**Non-commercial banks generally place a larger emphasis on long-term, non-bank, and smaller lending, as well as retail services. These activities are better equipped to service SME financing needs. Beyond banking**

Non-commercial banks, cooperatives and savings banks in particular, have on average a larger share of their assets in non-bank lending relative to commercial banks. Moreover, this non-bank lending is on average more focused on small companies. It is generally more long-term. The focus on lending is reflected in the relatively larger branch network of cooperatives and savings banks. While this applies on average, significant differences exist between the practices of cooperative and savings banks across Europe. This report argues that these characteristics make non-commercial banks particularly equipped to service the financing needs of the small green economy (Fig. 1). Crucially, the results do not necessarily suggest that non-commercial banks are superior to commercial banks. The report instead concludes that banking sector diversity in particular, and financial sector diversity more generally, create an environment that improves the cost and availability of finance to the real economy and SMEs. This is particularly relevant given the prominence of SMEs in realizing the transition to a low-carbon economy.

**FIG 1: ROLE OF BANKING DIVERSITY IN FINANCING THE SMALL GREEN ECONOMY (SOURCE: AUTHORS)**

**1. Financial assets:**
**Non-commercial banks place a larger emphasis in their balance sheet on non-bank lending. While this does not necessarily target SMEs, lending is a key source of funding for SMEs. Banking diversity ensures the presence of banks that emphasize non-bank lending.**

**2. Local presence**
**Banking diversity ensures the presence of financial institutions that place an emphasis on branches and retail activities. Academic research shows that the local presence of banks facilitates local lending and strengthens corporate innovation.**

**3. Time horizon**
**Non-commercial banks generally provide more long-term lending than commercial banks. While this may be due to different types of lending (e.g. more real estate), generally more long-term lending facilitates green activities with longer payback periods.**

**4. Stability of credit provision**
**Banking diversity ensures that not all banks are exposed to financial shocks in the same way. Both for internal and external instability in financial markets, different risk exposure implies the banking sector as a whole can ensure more stable credit provision.**

# I. INTRODUCTION

**SMEs and the green economy.** Small- and medium sized enterprises are at the heart of the European economy. SMEs account for 99% of all European businesses, 58% of gross value added, and two in three employees (Fig. 2) (EC, 2014).

SMEs arguably play an even more prominent role in the green economy. Nearly a third of SMEs offer green products or services and four in ten SMEs have at least one full time 'green job' (Fig. 3) (EC, 2013). SMEs play a significant role in three steps of the green economy (Fig. 4):

- **Innovation**: Achieving 2° C climate goals will require R&D on break-through technologies Although the associated financing need is a fraction of that for infrastructure ($100 billion in R&D annually versus $1 trillion), the 'gap' is larger. Start-ups are often involved in breakthrough innovations and as they are highly interlinked within value chains, they create spill-over knowledge. They act not only as exploiters but also as sources of knowledge (OECD, 2010).

- **Commercialisation:** Technologies related to the energy transition are generally first manufactured on relatively small unit and industry scales before they scale up (Gallagher, et al. 2012). This phase is characterized by many small firms selling to many customers, thus enabling learning and experimentation ultimately leading to standardized designs for technologies.

  Germany and France are home to roughly 900 energy service companies respectively, with an average turnover per company of EUR 6-10 million (Bertoldi et al. 2014.). According to a survey published by Eurobarometer 2013 (EC, 2013), over a quarter of SMEs stated that they offer green services or products, and an additional 7% plan to do so over the next two years. In terms of commercialisation, most manufacturers of balance of system (BOS) components can still be qualified as small (IRENA, 2012).

- **Energy & resource efficiency:** SMEs account for around 64% of industrial pollution in Europe, with the biggest contributors being those operating in the manufacturing, energy production, land transport and construction sectors (Danish Technological Institute, 2010). Medium-sized companies are also more likely to operate in a sector with a high impact on the environment. "Greening" the products and business processes of SMEs is therefore crucial. 93% of European SMEs claim to already take actions to be more resource efficient (EC, 2013).

**FIG 2: THE PROMINENCE OF SMES IN THE EUROPEAN ECONOMY (SOURCE: AUTHORS, BASED ON EC DATA)**

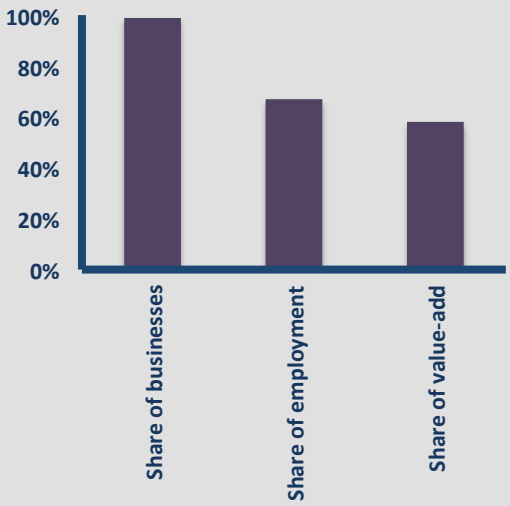



**FIG 3: THE PROMINENCE OF SMES IN THE GREEN EUROPEAN ECONOMY (SOURCE: AUTHORS, BASED ON EUROBAROMETER 2013 DATA)**

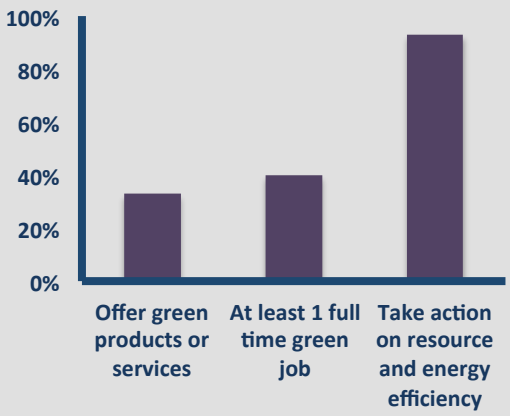



**FIG 4: SMES AND THE GREEN ECONOMY (SOURCE: AUTHORS)**

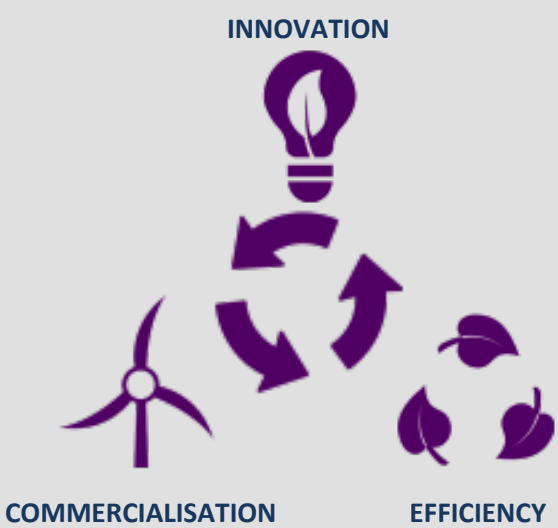


**FIG 5: AVERAGE INTEREST RATE CHARGED FOR THE CREDIT LINE OR BANK OVERDRAFT TO EURO AREA ENTERPRISES (SOURCE: ECB 2014)**

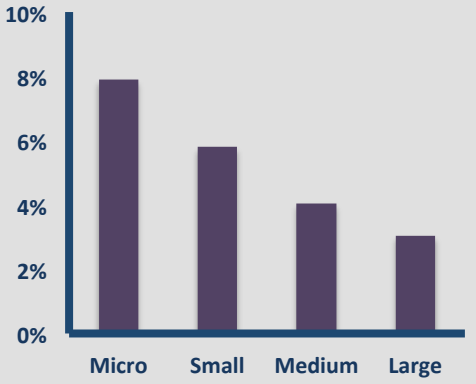



**FIG 6: SHARE OF CREDIT INSTITUTION LOANS IN CORPORATE LIABILITIES (SOURCE: AUTHORS, BASED ON BACH DATA)**

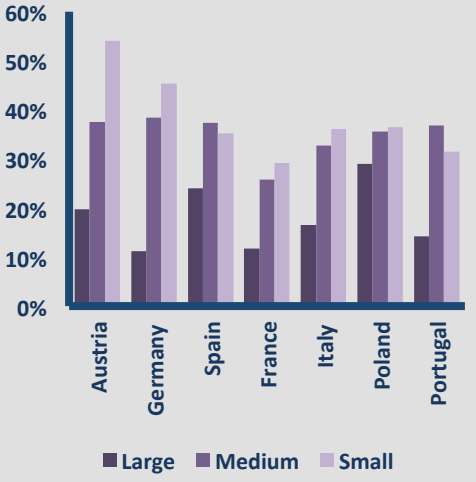
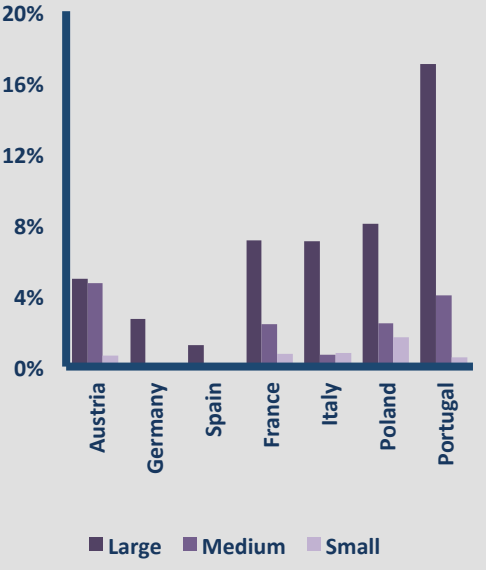



**FIG 7: SHARE OF BONDS AND SIMILAR OBLIGATIONS IN CORPORATE LIABILITIES (SOURCE: AUTHORS, BASED ON BACH DATA)**




**Challenge: Access to finance.** The extent to which SMEs deliver on the promise of contributing to the green economy hinges at least in part on their access to finance. The ECB European SME survey suggests access to finance is seen as the second most pressing problem for SMEs, behind finding customers. This picture is not homogenous across Europe – 32% of the SMEs in Greece, 18% in Ireland and 17% in Spain and Portugal named access to finance as the most pressing problem, compared with only around 9% of SMEs in Germany and 7% in Austria. Across Europe, the average interest rate for credit lines or bank overdrafts is roughly 3% for large companies compared to nearly 8% for micro enterprises (Fig. 5). The spread between small (<1 million EUR) and large (>1 million EUR) loans rose from 50 to over 150 basis points between 2007 and 2014, with an even larger spread for very small (<0.25 million EUR) loans.

They key source of this finance is credit from bank (Fig. 6). Bond financing in turn plays a subordinate role, In France for example, the average share of bonds and similar obligations in liabilities is 7.1% for large companies, 2.3% for medium companies and 0.7% for small companies (Fig. 7).

**A policy response.** The challenge of access to finance for SMEs is both a concern from a green economy and broader economic perspective. Policy makers are starting to address this issue in a number of different ways. The ECB has adjusted their collateral regime to crate preferences for SME assets. The new Juncker Commission has launched the Capital Markets Union initiative, which is designed, among other things, to improve SME access to capital markets.

**The role of banking diversity.** Policy responses have focused on either improving broader macro-economic conditions for SMEs, public subsidies, or, with the Capital Markets Union, a focus on 'diversifying' access to finance for SMEs. Under-explored in this context is the specific structure of the banking sector and the role it plays for access to finance. As outlined above, the banking sector is the key source of financing for SMEs. This paper will argue that banking diversity, notably with regard to the presence of commercial and non-commercial banks, can improve the financing conditions for SMEs and the green economy. Different types of banks are better equipped to service different parts of the economy. The paper will highlight the role of banking diversity for access to finance and stability of credit provision. Diversity will be assessed through the lens of ownership and the actual lending practices and business models of different banks.

**Structure.** The paper will first map the typology of banks and the key differences in terms of the respective balance sheets. Based on this discussion, the paper will then discuss the relationship between banking diversity and access to finance. . The conclusion will briefly map the opportunities for financing beyond banking diversity and provide an outlook for policy makers.

# II. BANKING STRUCTURE IN EUROPE

**Taxonomy of the banking sector.** Access to finance will be a factor in determining the extent to which SMEs are able to realize the necessary investment to innovate and mainstream the green economy. The banking sector will play a key role in providing this financing. Mapping the nature of the banking system, in particular its structural indicators and lending activity, is thus the first step to understanding how the banking sector can deliver this financing. The banking sector can be dived into three major categories of banks, within which in turn specific types or sub-categories can be identified. These three categories are commercial banks, cooperative banks, and public banks. Fig. 8 provides an overview of the key differences and similarities between the three types of bank for the German banking sector.

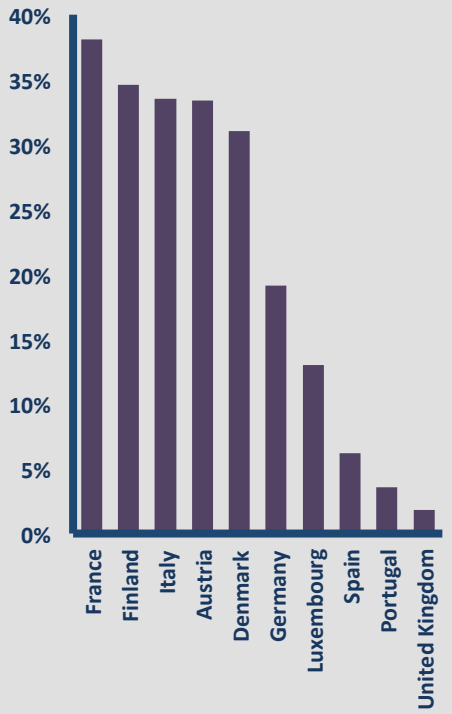
There are a range of qualitative and quantitative indicators that can be compared to understand the differences between different bank types, including bank governance, strategy, and public positioning. In mapping differences between different bank types in Europe, this paper will focus on quantitative indicators related to the balance sheet of different banks.

**The role of ownership.** The key distinction between these three categories is the ownership. Commercial banks are owned by private investors, cooperative banks by depositors, and public banks by public authorities. Different owners in turn imply different positioning and different business strategies. The mix between these different banks in national banking sectors can be very different from one country to another. Partly this is a result of political tradition. Regional banking plays a strong role in the United States and Germany with federalist political structures, and a minor role in France. The stakeholder banking system played a more prominent role in Germany relative to the United Kingdom and public development banks tend to be more prominent in countries with a strong tradition of state intervention. On the other hand, differences may also be more short-term. The United Kingdom for example used to have a significant non-commercial banking sector prior to the 1980s, which has since then seen significant decline.

**FIG 8: TAXONOMY OF GERMAN BANKING SECTOR (SOURCE: AUTHORS, BASED ON DEUTSCHE BANK 2013)**

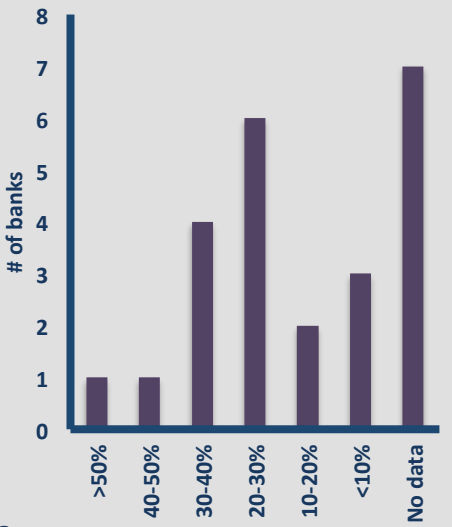
| | Commercial banks | Cooperative banks | Public banks |
|---|---|---|---|
| **Owners** | Private investors | Depositors | Municipalities, states |
| **Major bank types** | Investment banks, retail banks | Cooperative banks and giro institutions | Savings banks, “Landesbanken (regional public banks), development banks |
| **Main customers** | Corporate and institutional clients, SMEs and households | SMEs and households | |
| **Geographic scope** | National and international | Regional for cooperatives and savings banks + national and international for development banks | |
| **Business objectives** | Customer value, shareholder value | Customer value | Customer value and broader public policy objectives |
| **Deposit protection** | Deposit insurance | Institutional guarantee | |
| **Availability of state guarantees** | Not available | | Public guarantees (limited to Landesbanken) |
| **Examples** | Deutsche Bank | DZ Bank | Berliner Sparkasse, KfW |

**FIG 9: DOMESTIC LOANS MARKET SHARE OF SAMPLE OF EUROPEAN COOPERATIVE BANKS (SOURCE: AUTHORS, BASED ON EACB DATA)***




* The review includes the following banking groups: Raiffeisenbanken (Austria), Volksbanken (Austria) Crédit Agricole (France), Crédit Mutuel (France), BVR (Germany), Associazione Nazionale fra le Banche Popolari (Italy), Federcasse (Italy) Nykredit (Denmark) Banque Raiffeisen (Luxembourg), Crédito Agricola (Portugal), Unión Nacional de Cooperativas de Crédito (Spain), The Co-operative Bank (UK)

**FIG 10: SAVINGS BANKS' MARKET SHARE OF NON-BANK DEPOSITS IN EUROPE 2013 (SOURCE: AUTHORS, BASED ON ESBG DATA)**




**Banking diversity in Europe.** The banking structure looks significantly different across Europe. While commercial banks are prominently represented in all banking systems, the relative prominence of non-commercial banks differs across Europe. The following provides a brief overview of the main non

- **Cooperative banks:** Cooperative banks served roughly 205 million clients in Europe in 2013, via over 67,000 branches. They boast nearly 78 million members. European cooperatives banks (including building associations) account for over EUR 7 trillion in assets and nearly EUR 4 trillion in loans. The relative prominence of cooperative banks differs significantly by country. Cooperative banks Crédit Agricole and Crédit Mutuel in France together account for 38,3% of domestic loans, whereas in the UK the the Co-operative Bank only accounts for 1.8% of domestic loans (Fig. 9).

- **Savings banks:** Savings banks have about 220 million customers in Europe. They account for about 35% of branches. Savings banks have total assets of EUR 6.8 trillion and EUR 4.4 trillion in loans. 84% of these loans were awarded to non-financial cooperations. Similar to cooperative banks, the relative prominence of savings varies significantly (Fig. 10). Whereas savings banks make up over 40% of deposits in Spain, they account for less than 10% in Finland.

- **Public development banks:** Public development banks are usually focused on international activities, but may also be active domestically. This is particularly the case in Germany for the KfW and in France. In 2013, KfW Had a balance sheet of EUR 465 billion and over half of its business domestically. It places a significant emphasis on funding for SMEs and sustainable / climate-related projects. While perhaps the type of bank most focused on SME lending, at least domestically, public policy banks play a distinct role from savings banks or cooperatives given their specific political mandate. The key question of this paper are non-political banks and thus this type of bank will not be explored in the further discussion.

**Beyond ownership: Banking diversity within banks.** Banking diversity can be seen from the perspective of ownership. Banking sectors that have a significant share of institutions with diverse ownership structures can by this measure then be described as diverse. One key challenge in that respect is the extent to which banks may have different business models even when pursuing the same business model. One example are so-called 'ethical banks' that still have a shareholder model.

Banking diversity may thus exist within banks with the same ownership for one country, but also across countries. As the subsequent analysis will show, cooperative banks have very different balance sheets across geographies. This applies both to their liabilities and assets side. When focusing on the issue of banking diversity, this report highlights that banking diversity is a function of the actual variety of business models and balance sheets as opposed to the variety of ownership structures.

**Banking diversity in practice.** To assess banking diversity between banks with different ownership structures, the report will take advantage of the raw data provided by the German Bundesbank on the business activities by bank type in Germany. Data is disaggregated using the following categories: Big banks (the four largest commercial banks in Germany), commercial banks (all commercial banks), regional banks (regional and other commercial banks), Landesbanken (public regional banks), savings banks, and credit cooperatives. Other categories (e.g. development banks, building associations, etc.) were not reviewed. Beyond the German specific data, the report will also seek to understand how credit cooperatives and savings banks may operate differently in different countries across a sample of European countries.

There are a range of different indicators to measure differences in banks' business models. This reports focuses on four: the retail services (measured by banks' branches), the asset structure, the time horizon of loans, and data on lending to SMEs. Excluded from the discussion are liabilities. This is because of the general focus on the lending, and thus asset side of banks. Generally, a key difference in the liability structure, which is reflected on the asset side, is that a significant part of commercial banks' liabilities consist of derivatives. For most non-commercial banks, these will be entirely absent.

**Differences in asset structure.** Commercial and non-commercial banks *on average* will have different assets. One key distinction is the relative focus on non-bank lending. In Germany, where comprehensive data by bank type exists, cooperatives and savings banks have a significantly higher non-banking lending share in their balance sheet relative to commercial banks (Fig. 11). Interestingly, within the category of commercial banks, regional commercial banks have over the past 15 years begun to approximate the share of non-bank lending of savings banks and cooperatives, whereas Germany's largest commercial banks ('big banks') have seen a significant decline in non-bank lending. This validates the assumption that bank ownership by itself does not necessarily imply diversity. Moreover, these results may change over time. Thus, the share of non-bank lending among big banks for example dropped from 50% in 1999 to only 19% by the end of 2014. Despite the growth of the economy and the banking sector more generally, big banks non-bank lending, even without accounting for inflation, is 15% lower today in absolute terms than in 1999.

The results suggest that the drop is thus not just a function of the general expansion of big banks balance sheets, which explains for example to a significant degree the visible drop in 2010, and the associated increase in activity in other business segments, but also a result of reduced lending activity. For non-commercial banks, the share has remained largely even with slight volatility around historical averages.

While German data suggests cooperative banks place a higher focus on non-bank lending, this focus will not be consistent across geographies (Fig. 12). Thus, cooperative banks in the United Kingdom (The Co-Operative Bank) and France (Crédit Agricole) have a significantly lower share of loans relative to total assets. Italy and the Netherlands in turn boast significantly higher shares. A sample review by the authors of commercial and non-commercial banks' annual reports across a sample of European countries validated this diversity within bank type.

**FIG 11: SHARE OF NON-BANK LENDING BY BANK TYPE IN GERMANY (SOURCE: AUTHOR, BASED ON BUNDESBANK DATA)**

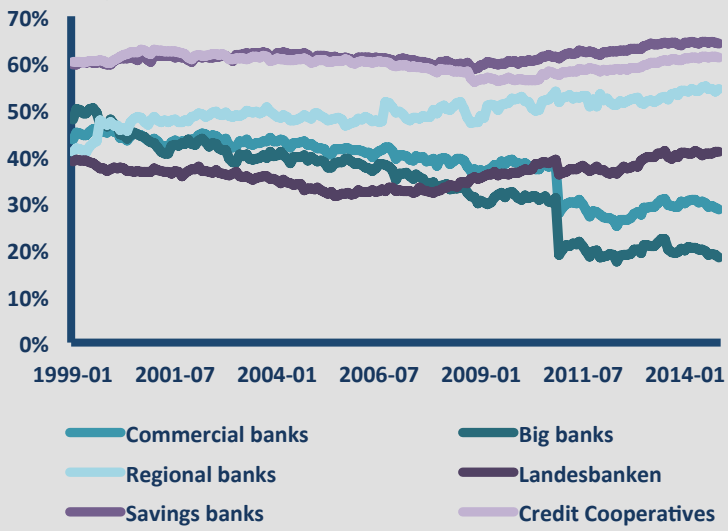



**FIG. 12: SHARE OF LOANS IN TOTAL ASSETS (SOURCE: AUTHORS, BASED ON ESBG AND EACB DATA)**

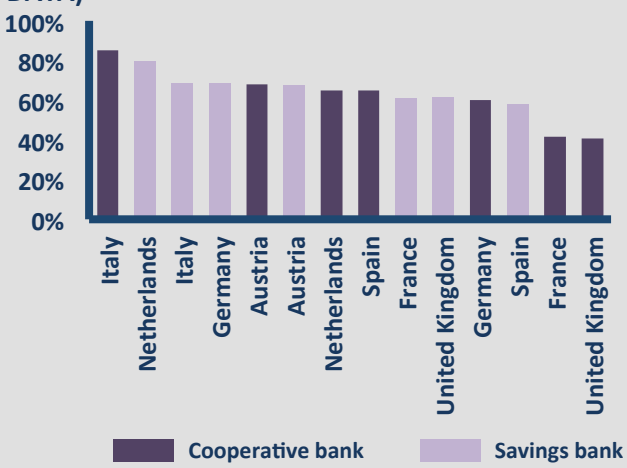


**FIG. 13: SHARE OF LOANS TO DOMESTIC ENTERPRISES IN NON-BANK LENDING (SOURCE: AUTHORS, BASED ON BUNDESBANK DATA)**

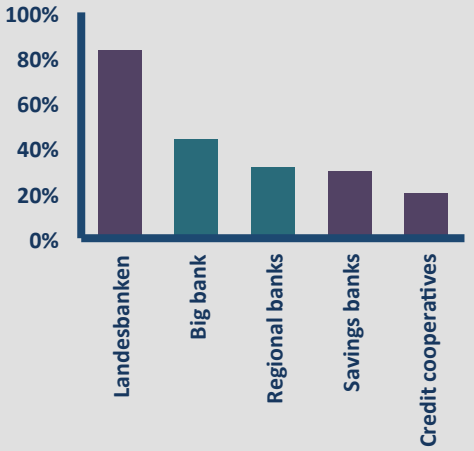



**FIG. 14: BREAKDOWN OF SAVINGS' BANK LENDING (SOURCE: AUTHORS, BASED ON ESGB DATA)**

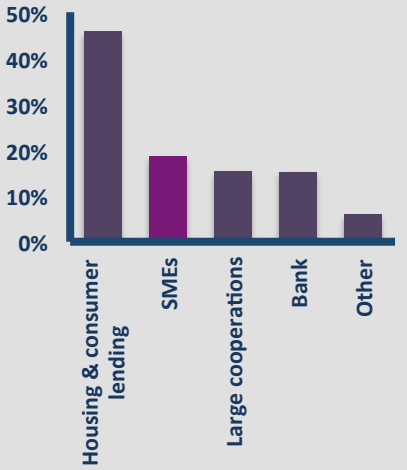
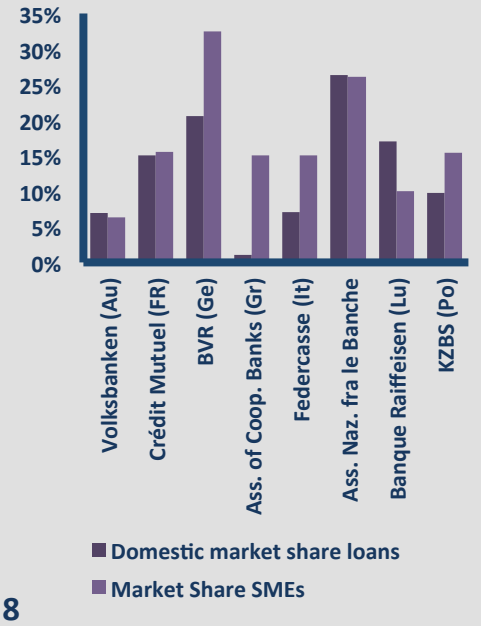



**FIG 15: SHARE OF COOPERATIVE BANKS IN DOMESTIC MARKETS AND SME LENDING (SOURCE: AUTHORS, BASED ON EACB DATA)**




**Differences in lending practices for non-bank loans.** Housing & consumer, corporate, and public sector lending all fall in the category of non-bank lending. Different bank types will emphasize these different sectors of the economy differently.

In Germany, Landesbanken, given that they generally do not provide housing loans for example, have an 83% share of their lending activities to domestic enterprises. Other commercial and non-commercial banks have significantly lower shares, with commercial banks shares generally higher than non-commercial bank shares (Fig. 13). The results are to a significant degree explained by the relatively larger emphasis savings banks and credit cooperatives in Germany place on household lending and lending to self-employed persons.

In this analysis, data for regional commercial banks again seems to be very similar to that of savings banks. This highlights the fact that diversity cannot necessarily be captured by just looking at broad categories of different bank types (e.g. commercial vs. non-commercial). Different types of commercial banks in Germany appear to pursue very different business models.

While data for German banks suggest that German banks place a relatively smaller emphasis on corporate lending, within corporate lending, SME lending appears to play a significant role. Across European banks, savings banks lend more to SMEs than large cooperations (Fig. 14). Given the prominence of SMEs in Germany, these numbers are potentially even higher for German savings banks.

Comparative data on the lending activities to SMEs by type of bank is limited. For the German data, cooperatives are only not distinguished by size, only relative to 'self-employed persons'. This distinction does suggest though that savings and cooperative banks place a larger emphasis on lending to smaller companies. Roughly 22-23% of lending by these banks went to self-employed persons, versus 11-12% for commercial banks, and 5% for Landesbanken.

Specific data on SME lending across Europe only exists for credit cooperatives. The data that does exist suggests that, consistent with the analysis in the previous section, cooperative banks for example generally have a higher share of SME financing than commercial banks. It also suggests that this is not consistently the case across European cooperative banks (Fig. 15). German cooperative banks have a 33% share of lending to SMEs, higher than their 21% share in loans. In France on the other hand, Crédit Mutuel has a slightly lower share.

A further breakdown of this data in terms of lending to green SMEs is impossible. There is no clear definition of green SMEs. At the same time, there is no reason why SMEs can't be treated as a proxy for green SMEs. This implies that green SMEs rely significantly on bank credit and that this bank credit is delivered to a larger extent by non-commercial banks.

**Time horizon of lending.** The more granular German data suggests that not only are the types of assets different, the time horizon of lending is also different for different types of banks. Non-bank financial lending data from 2014 suggests that the commercial banks provide lending with significantly shorter tenor than non-commercial banks (Fig. 16). 87% of the loans by savings banks and cooperatives were longer than 5 years versus 60% for commercial banks and 62% for big banks.

The results are similar when looking at the time horizon of lending to domestic enterprises in Germany, with 47% of commercial bank' domestic enterprise lending long-term versus 68%-73% for savings banks, Landesbanken, and credit cooperatives.

A look at historical data suggests that these numbers can change significantly. Long-term lending to domestic enterprises by credit cooperatives increased from 42% to 72% in October 2014. Historical trend data is interesting as it suggests that current practices by bank type are not set in stone.

**Differences in retail services.** In terms of lending, one final difference that is noteworthy is not just the volume of lending, but also how this lending gets delivered. In particular, the extent to which banks operate a comprehensive retail network, as measured through their number of branches.

In Germany, the data suggests that savings banks and cooperative banks place a significantly higher emphasis on bank branches than commercial banks (Landesbanken were excluded as they don't perform classic retail services). These two banks had nearly 3 times as many branches per EUR billion on the balance sheet as commercial banks (Fig. 17).

A European comparison again shows that these numbers will not be consistent across banks. For this comparison, the number of bank branches were weighted by number of customers. The data suggests that non-commercial banks in the United Kingdom in particular had a much less developed branch network relative to their customers than all other countries reviewed (Fig. 18). Generally, banks had a branch for roughly 2000-3000 customers, with exceptions beyond the UK being Portuguese savings banks, as well as Finnish and French cooperative banks.

Similar to the analysis highlighted on the previous page, granular data for retail services for green SMEs does not exist. Some banks may have targeted lending programs as part of their retail business for small companies providing green services and products. No specific data exists on the extent to which green SMEs rely more or less on local lending than non-green SMEs. At the same time, there is significant analysis that a strong retail network supports innovation and local finance, key drivers for green SMEs (cf. next chapter).

**FIG. 16: AVERAGE MATURITY OF NON-BANK LENDING (SOURCE: AUTHORS, BASED ON BUNDESBANK DATA)**

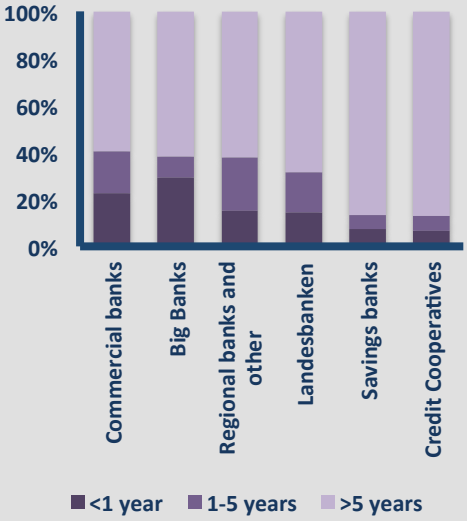



**FIG. 17: ASSETS PER BRANCH BY BANK TYPE IN GERMANY (SOURCE: AUTHORS, BASED ON BUNDESBANK DATA)**

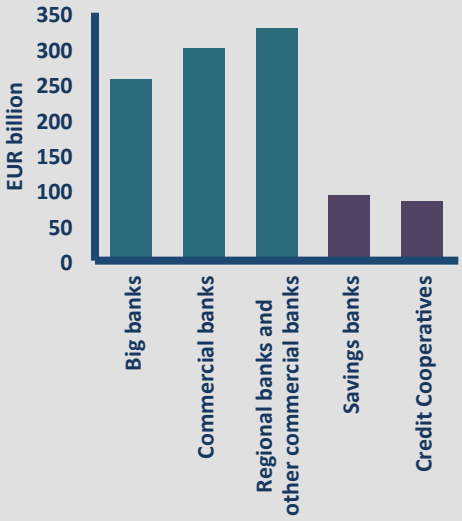
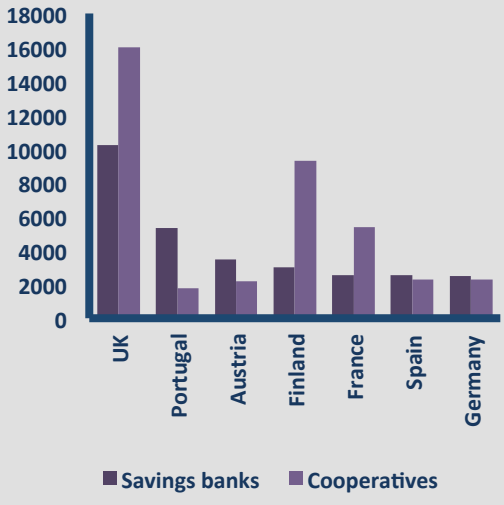



**FIG. 18: CUSTOMERS PER BRANCH (SOURCE: AUTHORS, BASED ON ESGB AND EACB DATA)**



# III. FINANCING THE SMALL GREEN ECONOMY

**Overview.** The previous section presented a snapshot of the diversity in banking structure across a sample of European countries. It then highlighted how this diversity in structure translate into diversity in business practices, albeit not consistently across geographies. Business practices reviewed focused in particular on the lending practices of banks, notably the share of lending in assets, the maturity of lending, and the focus on bank branches in delivering lending and other financial services.

This section will focus on the implications of banking diversity for financing the small green economy. Based on the analysis the report highlights four ways in which banking diversity contributes to improving the access to and cost of capital for small green companies. The four different roles relate to the differences in the structure of financial assets, the emphasis on local presence, the time horizon of lending, and the stability of credit provision (Fig. 19). While these four points will be discussed with a particular focus on SMEs in order to focus the discussion, much of the analysis could also be applied for households making 'green' investment (e.g. energy efficiency, etc.).

**Banking diversity and financial assets.** First, as outlined in the previous chapter, different banks have different balance sheets with different financial assets that provide financing in different ways. One key difference with regard to SMEs is the relative share of loans and advances to consumers versus other types of financial assets. As outlined above, non-commercial banks provide more access to finance to households and businesses. The data also suggests that, while commercial banks place a larger emphasis within their non-bank lending on cooperates, non-commercial banks focus more on SMEs. As outlined in the introduction, SMEs have a key role to play in building the green economy. Banking diversity thus is likely to contribute to improved access to finance for green SMEs.

Naturally, there are differences here within commercial and non-commercial banks. Building societies for example like Nationwide in the UK focus on mortgage and real estate lending and thus provide to a lesser extent loans to SMEs. This is one of the main reasons they were not included in the discussion in the previous chapter on banking diversity.

Similarly, as outlined above, not all commercial banks are created equal. Data from Germany suggests that regional commercial banks will place a bigger emphasis on lending. A cursive review of annual reports by the authors suggests that the share of lending can differ significantly across commercial banks in Europe.

**FIG 19: ROLE OF BANKING DIVERSITY IN FINANCING THE SMALL GREEN ECONOMY (SOURCE: AUTHORS)**

**1. Financial assets:**
**Non-commercial banks place a larger emphasis in their balance sheet on non-bank lending. While this does not necessarily target SMEs, lending is a key source of funding for SMEs. By extension, banking diversity ensures the presence of banks that emphasize non-bank lending.**

**2. Local presence**
**Banking diversity ensures the presence of financial institutions that place an emphasis on branches and retail activities. Academic research shows that the local presence of banks facilitates local lending and strengthens innovation.**

**3. Time horizon**
**Non-commercial banks generally provide more long-term lending than commercial banks. While this may be due to different types of lending (e.g. more real estate), generally more long-term lending facilitates green activities with longer payback periods.**

**4. Stability of credit provision**
**Banking diversity ensures that not all banks are exposed to financial shocks in the same way. Both for internal and external instability in financial markets, different risk exposure implies the banking sector as a whole can ensure more stable credit provision.**

**Banking diversity and 'local presence'.** Different balance sheets will also have knock-on effects on other indicators relevant for SME financing. Thus, a higher emphasis on loans and advances to customers suggests a higher share in bank branches for example. German savings banks and credit cooperatives make up 27% of German banks balance sheets, but account for over 67% of German bank branches Similar data can be seen in other European countries (NEF 2012). Austria and Germany, both with very diverse banking sectors, are the two countries with the lowest number of inhabitants per bank employee (126 inhabitants / employee for Germany and 111 for Austria) (EC, 2014)

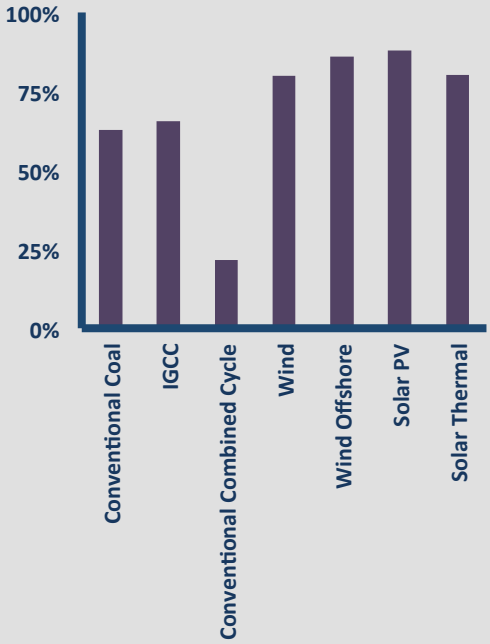
An empirical review of lending in post-transition countries suggest local cooperative banks lend more to small businesses, and at a lower cost, than large domestic banks and foreign-owned banks (Hasan, Jackowicz, & Kowalewski, 2014). Analysis by Presbitero (2008) suggests "SMEs located in provinces where the local banking system is functionally distant are less inclined to introduce innovation." As highlighted in the previous section, innovation plays a key role for the green economy.

The evidence suggests that local lending makes it easier for SMEs to access to finance. It may also make it easier for SMEs to weather financial difficulties. While there is no comprehensive data on this question, anecdotal evidence and common sense suggest that it is easier for a SME to negotiate debt restructuring with a local loan officer than through a centralized process, or even in the case that SME debt has been securitized.

**Banking diversity and time horizon.** As outlined above, non-commercial banks generally have more long-term assets than commercial banks. This is partly a function of the difference in assets on the balance sheet (i.e. commercial banks have a higher share of derivatives, which are generally more short-term relative to loans and advances). It also applies within asset classes however.

Financing the green economy is generally more capital intensive than other sectors and thus may involve longer payback periods. Within the power sector, renewable technologies are significantly more capital intensive than fossil fuels (Fig 20). In this context, banking diversity may ensure a higher number of credit institutions that are willing and able to provide more long-term financing. Green SMEs are likely to benefit in particular from access to this type of credit.

**FIG 20: SHARE OF CAPITAL COSTS IN TOTAL COSTS BY ENERGY TECHNOLOGY (SOURCE: EIA 2014)**




**Banking diversity and integration**

Levels of integration differ between countries, ranging from shared replicable services to fully integrated systems including centralisation of executive functions such as local bank supervision and global risk and liquidity assessment. Italian and Spanish stakeholder banks are almost entirely decentralised, German and Austrian have replicable services shared, and in the Netherlands, Finland, and France, systems are highly integrated. Fully integrated systems mean that stakeholder banks behave more and more like commercial banks, which may negatively impact the access to 'soft information'. Equally, systems with low levels of integration are likely to be less efficiency. While further research is needed, this analysis suggests that 'local banking' by itself may also have shortcomings if economies of scale with regard to replicable services are not taken advantage of. It is important to highlight that non-commercial banks may also have challenges that make them less effective than commercial banks. As always, this paper highlights the extent to which both types are needed and the extent to which both affect an efficient modus operandi.

**FIG 21 : TRENDS IN NON-BANK LENDING OF GERMAN BANKS (SOURCE: AUTHORS, BASED ON BUNDESBANK DATA)**

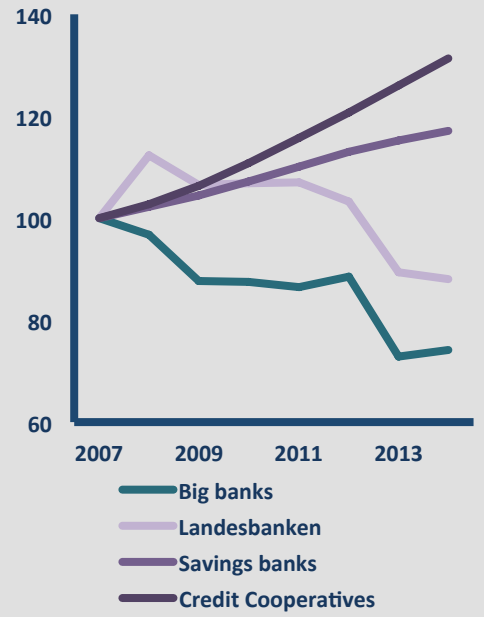
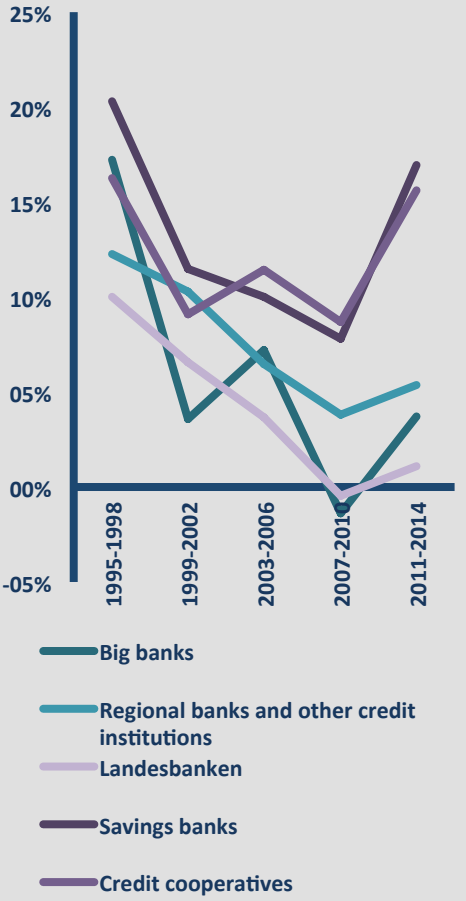



**FIG 22: RETURN ON EQUITY BY TYPE OF BANK IN GERMANY (SOURCE: AUTHORS, BASED ON BUNDESBANK DATA)**




**Banking diversity and stability of credit provision.** Given the lack of diversification of SMEs in terms of their funding sources, a key question is not just the availability of capital, but also the stability of that availability.

Banks differ in their exposure to financial shocks. While network effects and the extent to which these shocks may be correlated with a broader economic downturn imply that all financial institutions may be affected, their relative exposure will still be different. This suggests that a diversified banking sector enables some banks to respond better to specific shocks than others. Different exposure to risk then can improve the stability of credit provision.

While this has broader implications for financial stability, it is also key from their perspective of access to finance for SMEs. Since SMEs are to such a large extent dependent on bank credit, bank crises may affect them more than large companies that can tap into other sources of capital. During the 2007-2008 financial crisis, this banking diversity may have contributed to stabilizing lending in some countries.

In Germany, data on lending to households and business by savings banks and credit cooperatives suggests that 2007-2014 was a time of financial stability, with constant growth over the years (Fig. 21). Data on return on equity suggest savings banks and cooperative banks generally have much less volatility in their ROE than commercial banks (Fig. 22). Analysis from Groeneveld (2014) suggests cooperative banks across Europe saw a significantly smaller drop in credit growth relative to commercial banks.

Naturally, stakeholder banks can also fail, notable examples being the Spanish Cajas and German Landesbanken. Indeed, as Fig. 21 shows, German Landesbanken do not exhibit the same trend as savings banks and credit cooperatives. A historical review suggests that cooperative banks have also experienced significant financial crises (Erzegovesi, 2015). It has been argued that this is a result of deviating from the traditional non-commercial business model (NEF, 2012).

The discussion on banking diversity focuses less on the extent to which non-commercial banks may be subject to risk and why. Instead, the key question is whether banking diversity ensures greater stability in lending during financial crises. Recent evidence from the financial crisis suggests that that is the case. The caveat applied to that analysis then, and the preceding analysis more generally, is that the results rely on the assumption that the banking diversity is actually in place. This cannot automatically be measured using 'bank type' categories, but hinges on the extent to which banks with different legal structures in practice actually employ different business models. As shown, this is not automatically the case, with some commercial banks exhibiting high lending activity to households and businesses and some non-commercial banks investing in financial derivatives.

# IV. BEYOND BANKING

**Overview.** Green SMEs play a significant role on the European economic policy agenda as part of the broader policy objective to return Europe towards a path for sustainable growth. The cost and availability of capital for green SMEs is a key piece of the puzzle related to this policy agenda. Much of the associated political focus on this issue is mobilizing capital beyond the banking sector. The following briefly reviews the relevant alternatives:

**Venture capital** can provide capital for start-up SMEs. A key emphasis of these capital flows has been energy and environment, the fourth most financed sector via venture capital. Although it contributes to the innovation for a green economy, the size and influence of venture capital in Europe is limited. In total in 2013, venture capital benefited only 5,089 companies across Europe. While relevant in particular for disruptive start-ups, venture capital is not relevant as a source of financing for the majority of SMEs.

**Bond financing** either on capital markets or within dedicated debt funds (private placements) allows SMEs to diversify their access to financing. SMEs are mentioned 34 times in the EC Green Paper "Building a Capital Markets Union", which suggests revising the prospectus directive to set up harmonised information on SMEs throughout Europe. The European Communication on Long-Term Financing announced that delegated acts of MIFID II would minimise the administrative burden for SMEs issuance on the bond markets. A number of SME bonds platforms have been launched in the EU (OECD Journal, 2014). The experience of these markets is mixed (European Investment Fund, 2013). Although called "SME bonds", the companies issuing on these platform are generally mid-caps and not SMEs (EIF, 2013). As outlined on p. 4, bonds make up a marginal share of SME liabilities. Bonds and private placements are likely to remain only relevant for 'large' SMEs. The financing is thus likely to be particularly relevant in the context of allowing larger green SMEs to scale and tap into larger pools of capital.

**Alternative finance** has increased six fold over the past three years, driven by growth in the UK (Fig. 23). In the UK, peer-to-peer business lending makes up over 42% of all alternative finance, compared to 13% in Europe excluding UK (Fig. 24). The growth of alternative finance already makes it a relevant alternative to venture capital and smaller financing. Equally, it is unclear to what extent alternative financing will be able to service larger SMEs. In Europe (excluding UK), the average lending volume to SMEs in the past three years was less than EUR 40,000 (Cambridge University, 2015). Today, the market is still too young, especially outside of the UK, to predict the potential of alternative finance becoming a viable alternative to banking. Given that alternative finance is also a form of lending, it can be seen as part of the broader objective of lending institutions diversity.

**Alternatives and banking diversity.** Ultimately, the overall message is that a diverse banking sector is a positive thing, in particular for green SME financing. By extension, diversity beyond the banking sector can be seen through a similar positive lens, with venture capital, bond financing, and alternative finance respectively servicing financing needs that may be under-serviced or less efficiently serviced by bank lending. At the same time, all three types of financing, at least today, are not necessarily relevant for all types of SMEs. Banking remains the dominant source of funding. By extension, diversity within the banking sector will likely remain the key issue in the next years, with alternative sources of funding acting as complementary pieces.

**FIG 23: GROWTH OF ALTERNATIVE FINANCE IN EUROPE IN EUR MILLION (SOURCE: CAMBRIDGE UNIVERSITY / EY 2015)**

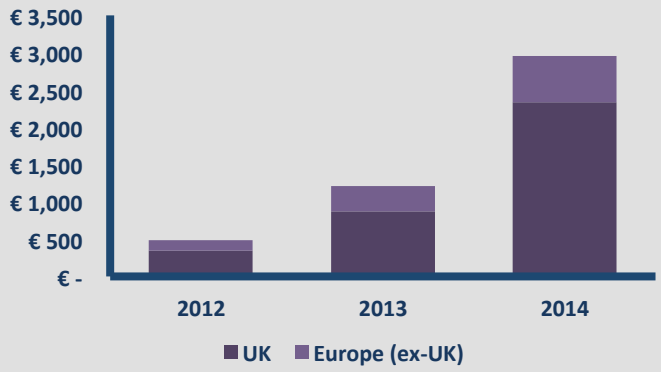
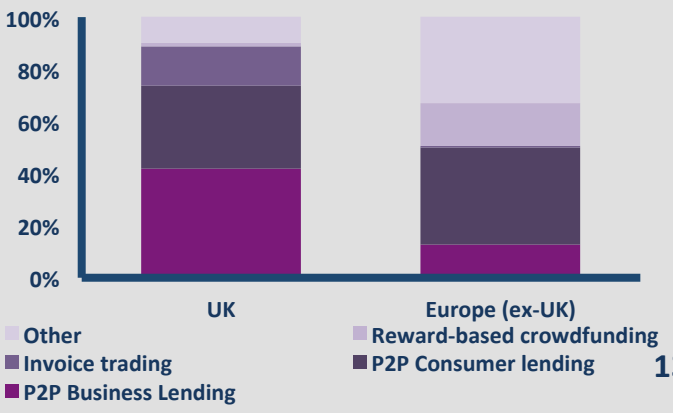



**FIG 24: BREAKDOWN OF ALTERNATIVE FINANCE IN EUROPE BY TYPE (SOURCE: CAMBRDIGE UNIVERSITY / EY 2015**



# V. CONCLUSION

The paper focused on the role of banking diversity on access to finance for the 'small' green economy. It demonstrated the relationship between the green economy and SMEs. It then argued that access to finance for the small green economy was not just a function of broader macroeconomic factors but also the structure of the banking system. Specifically, it demonstrated that different types of banks, as a result of differences in balance sheets, lending horizons, and local presence, were equipped differently to service SMEs financing needs.

In particular, the analysis highlighted the role of non-commercial banks in a diverse banking sector to provide SME lending. The combination of quantitative and qualitative analysis demonstrated that banking diversity contributed to a better servicing of the different financing needs in the economy and ensured a larger stability in lending to SMES during financial instability.

At the same time, the paper demonstrated a key caveat to the analysis, notably the extent to which bank ownership models, commercial versus non-commercial, did not necessarily accurately capture the differences in business models. It also highlighted the extent to which the dynamic between localized lending and the centralisation of replicable services factored into the efficient intermediation of capital and the ultimate viability of non-commercial banks as a stable source of financing.

The paper placed a particular emphasis on banking and banking diversity, reflective of the dominant role of bank credit in providing external capital to SMEs. Naturally, there are other avenues to improving access to finance. The growth of peer-to-peer lending is creating opportunities for non-bank finance. As peer-to-peer lending grows, this may also imply more opportunities for SMEs, in particular for innovation. Peer-to-peer lending is still in its infancy however and the ultimate development of the sector remains to be seen. Another area is venture capital, which is under-developed in many European countries relative to the United States for example.

From a political perspective, the European Commission has launched the Capital Markets Union initiative, designed, among other things, to improve the access to finance for SMEs. Diversifying SME funding sources away from banks is likely to support the overall credit conditions. At the same time, there are natural barriers for SMEs to tap into the bond market for example, given the relative size of SMEs. It is unclear whether this will become a viable source of funding, beyond some bond financing of relatively large established medium-sized enterprises. Indeed, as this paper shows, it may make more sense to focus on banking diversity rather than funding diversity more generally.

Banking diversity is usually treated as a function of 'history' or 'tradition'. Indeed, the federalist structure of the German state lends itself to a more diversified banking system – as articulated politically through the regionality principle that limits the rights of regional banks to engage in banking activity outside of their region. At the same time, the United Kingdom is one example where a very diverse banking sector has progressively moved to a more homogenous banking sector (NEF, 2012). The regionality princple also used to play a more prominent role in the United States. Business models may also evolve over time even if the ownership structure doesn't change. German commercial and non-commercial banks have show significant changes to their business model.

These changes can be reversible and indeed, there is evidence that they sometimes are reversed. Big banks lending for example got progressively more short-term leading up to the global financial crisis. Since then, lending has gotten more long-term again. A plethora of reasons may explain this, which are not captured by the data. Whatever changes may be identified as the driver, they demonstrate that changes will alter banks' business models. Banking diversity thus is not some type of historical gift, but earned through a policy framework that protects and incentivises a diverse set of banks, in the interest of financing green growth and a more resilient system.

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The 2° Investing Initiative [2°ii] is a multi-stakeholder think tank working to align the financial sector with 2°C climate goals. Our research and advocacy work seeks to:

- Align investment processes of financial institutions with 2°C climate scenarios;
- Develop the metrics and tools to measure the climate performance of financial institutions;
- Mobilize regulatory and policy incentives to shift capital to energy transition financing.

The association was founded in 2012 in Paris and has projects in Europe, China and the US. Our work is global, both in terms of geography and engaging key actors. We bring together financial institutions, issuers, policy makers, research institutes, experts, and NGOs to achieve our mission. Representatives from all of the key stakeholder groups are also sponsors of our research.

**Inquiry**: Design of a Sustainable Financial System

The Inquiry into the Design of a Sustainable Financial System has been initiated by the United Nations Environment Programme to advance policy options to deliver a step change in the financial system's effectiveness in mobilizing capital towards a green and inclusive economy – in other words, sustainable development. Established in early 2014, it will publish its final report in the second half of 2015.

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

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