



BANCA D'ITALIA
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Questioni di Economia e Finanza

(Occasional Papers)

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a critical review of the ongoing debate

by Salvatore Cardillo, Raffaele Gallo and Francesco Guarino

July 2021

Number

634



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The series is available online at www.bancaditalia.it .

ISSN 1972-6627 (print)

ISSN 1972-6643 (online)

Printed by the Printing and Publishing Division of the Bank of Italy

MAIN CHALLENGES AND PROSPECTS FOR THE EUROPEAN BANKING SECTOR: A CRITICAL REVIEW OF THE ONGOING DEBATE

by Salvatore Cardillo*, Raffaele Gallo* and Francesco Guarino**

Abstract

This paper discusses the competing forces that are reshaping the European banking industry and the medium-term consequences for profitability and competition within the sector. The paper highlights that banks are rethinking their business model to address four challenges to emerge in the last decade: low interest rates, tighter regulation, technological innovation, and increasing competition from non-bank intermediaries. The shock generated by the Covid-19 pandemic adds to those developments and has the potential to accelerate them. Our analysis suggests that in order to successfully compete in the medium term banks will likely have to exploit the benefits of digitization, mainly deriving from the reduction in operating costs and the increase in the scale of production. Accommodating the surging demand for green finance is also likely to represent an important source of profits, resulting from the growth of the green market and the development of new specialized products and advisory services. Success in these strategies will presumably require a significant reorganization of banks' activities to leverage on economies of scale and scope.

JEL Classification: G21, G28.

Keywords: banking sector, bank business model, bank profitability, Covid-19, digitization.

DOI: 10.32057/0.QEF.2021.0634

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* Bank of Italy, Directorate General for Economics, Statistics and Research - Financial Stability Directorate.

** Bank of Italy, Directorate General for Financial Supervision and Regulation - Regulation and Macroprudential Analysis Directorate

1. Introduction¹

Banks are facing new challenges and the industry will significantly change in response to a number of competing forces. A substantial research effort has been directed to envisage the future of the banking industry, either from a very general perspective (e.g. Carletti et al., 2020) or through the discussion of specific issues (e.g. Boot et al., 2020). This paper complements this literature by reviewing the debate about how the business model of European banks could adapt to the new environment. The paper discusses the main forces identified by experts, academics, and institutions as fundamentally affecting the European banking industry and their medium-term consequences for profitability and competition within the sector, highlighting also the effect of the pandemic outbreak.

First, the traditional business model of banks is affected by the long-lasting low interest rate environment (LIRE), which erodes the net interest income. Second, tighter financial regulation introduced after the Global Financial Crisis (hereinafter GFC) have contributed to strengthen the resilience of the banking sector but it is also putting pressure on bank profitability by leading intermediaries to accumulate more capital and liquid assets. Third, the massive adoption of technological innovation is significantly affecting banks' business lines both in terms of internal processes and distribution of services. Finally, the competitive pressure on banks is rising given the increasing role of new FinTech players and non-bank intermediaries, as these entities may exploit competitive advantages due to more efficient technology-based business models and fewer regulatory restrictions.

The outbreak of the Covid-19 pandemic is expected to exacerbate the pressure deriving from those trends. On the one hand, banks are facing an additional burden on profits and capital soundness because of a generalized increase in credit risk, persisting low growth and the prolongation of the LIRE. On the other hand, the dramatic – and likely permanent to a certain extent – change in social interaction models and customers' behaviours will force banks to accelerate the transition towards a more intensive reliance on digital technologies.

Our review suggests that the banks able to successfully compete in the medium term will likely be those that will exploit the benefits of digital innovation. Digitization is having a disruptive impact along the value chain: it is affecting the kind of services that banks are providing (e.g. the creation of new digital banking products), how intermediaries produce them (i.e. automation and outsourcing), how services are distributed (e.g. mobile applications and online platforms), but also which entities are involved in this process (e.g. new digital-based entrants). In addition, digitization is also leading to an increase in the type of information that intermediaries are able to collect and process. As a result, the ability to integrate new technologies into core activities will likely be the key determinant of banks' competitiveness in a digital-intensive environment.

Accommodating the increasing demand for “green finance”² is also likely to represent an important source of profits in the medium term. Indeed, recent analyses show that the various segments related to green finance, such as the direct financing of green investments as well as the development of new specialized products and services, may provide significant profit opportunities, with a worldwide revenue potential of more than \$100bn in the next 5-10 years. Available data show that banks are increasingly interested in these businesses: the three leading Euro area banks underwrote more than \$31bn bonds in 2019, 33 percent more than the previous year and almost three times the volume of 2015 (Climate Bonds Initiative, 2019). However, there is still an unexploited

¹ We thank P. Angelini, M. Bofondi, E. Bonaccorsi Di Patti, N. Branzoli, D. Ciani, F. Columba, A. De Vincenzo, A. Di Cesare, I. Faiella, E. Gaiotti, F. Palazzo, B. Szego and C. Vacca for their useful comments. The views expressed in this paper are those of the authors and do not necessarily reflect those of the Bank of Italy.

² For the purpose of this paper, we use “green finance” to broadly indicate financial products and initiatives aimed at financing investment projects with low environmental impact and/or aimed at sustaining the transition to a greener economic system, including green bonds, loans aimed at financing sustainable projects and investments in funds with a green footprint (see Section 3.2).

potential as the overall share of green products in banks' balance-sheets is low. Intermediaries can exploit this potential by leveraging on both green corporates demanding funds, directly financing them, and on customers willing to invest in this segment, fostering the reallocation of portfolios via sustainable investment strategies and developing ad hoc advisory services.

Success in the medium term will presumably require a significant reorganization of banks' activities to exploit economies of scale and scope. First, the need to invest in digital innovation, reduce inefficiencies, rethink internal processes and risk management creates greater opportunities for economies of scale. As a result, the intermediaries that will adapt their business models to leverage on economies of scale may strengthen their competitive position with respect to incumbents and new entrants.

Second, FinTech players – unlike banks – typically provide a limited set of unbundled services, focusing on one or few business segments; in contrast, banks may adopt profitable cross-selling strategies by providing different and integrated financial services. In addition, the demand of customers for high(er) yield investment stimulated by the persisting LIRE, demographic factors (e.g. the ageing of population), and interest in “green” projects will likely have to be satisfied via professional wealth and asset management services, which can support fee income growth and contribute to the diversification of revenues. These developments will presumably increase the importance of exploiting economies of scope and the benefits associated with the ability of banks in establishing long-lasting relationships with their customers.

Finally, also policymakers will play a pivotal role in shaping the structure of the banking industry in the medium term, as new regulatory intervention will be probably required in the near future to cope with the acceleration of digital innovation and the development of green finance.

The rest of the paper is organized in four sections. Section 2 reviews the direct consequences of the shocks induced by the pandemic and their interplay with the challenges that banks were already facing before the Covid-19 outbreak. Section 3 discusses the two main trends that will emerge fully in the medium-term: the acceleration of digital innovation and the growing demand for “green finance”. Section 4 examines the potential implications of the discussed changes for the sustainability of the business models and for the structure of the banking industry. The final section provides a summary of the main themes outlined in the previous parts.

2. The current economic and financial environment

Starting from the GFC in 2008, the banking business has been challenged by several developments. Four main challenges are imposing a significant rethinking of the current business model. The first is the low interest rates environment, which is compressing the interest margin thereby reducing net interest income. The second is tighter financial regulation, in particular capital and liquidity requirements, which have contributed to strengthen the resilience of the banking sector but have also put pressure on bank profitability by leading intermediaries to accumulate more capital and liquid assets. The third development is the massive technological innovation, which is significantly affecting banks' business lines both in terms of internal processes and distribution of services. The fourth development is the increasing competition from non-bank intermediaries, such as shadow banking entities (e.g. asset management companies and investments firms) and new tech-based players.

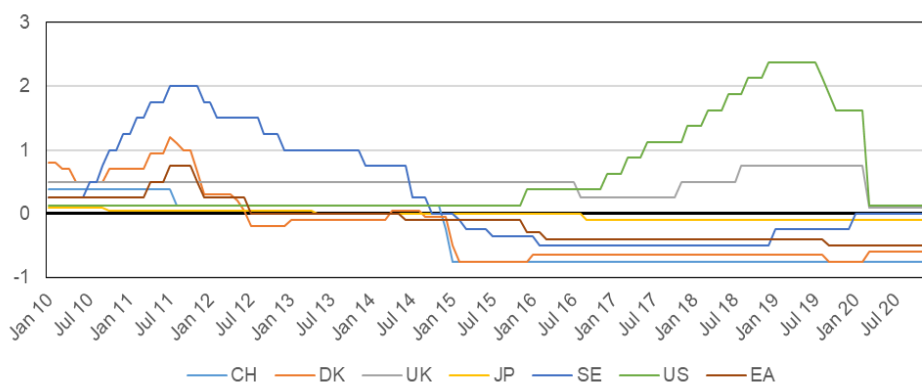
The shock generated by the Covid-19 pandemic adds on those developments and has the potential to accelerate the trends emerged in the last decade. Despite the fact that banks faced the pandemic outbreak with more solid capital and liquidity structures than in the GFC (Bank of Italy, 2020a; ECB, 2020a), the additional pressure on profits and the increasing credit risk stemming from the weaker economic outlook might hamper their intermediation capacity in the medium term. In addition, the countermeasures related to the health emergency – mainly based on social distancing and remote

interactions – are giving additional momentum to the diffusion of digital technologies in the provision of financial services. Finally, the monetary policies undertaken so far in response to the pandemic-related crisis would likely reinforce and prolong the low-interest environment.

2.1 Low(er)-for-long(er)

The decade following the GFC has been characterized by a persisting trend of declining nominal interest rates (Figure 1),³ affecting both short-term and long-term rates, which led to historically low yields and a generalized flattening of the yield curve. In the recent years, some central Banks set policy rates in negative territory: the Danmarks Nationalbank, the European Central Bank, the Sveriges Riksbank, the Swiss National Bank and the Bank of Japan have been charging negative rates on excess reserves (Carletti et al., 2020).

Figure 1: Policy rates of major Central Banks, 2010-20 (per cent)



Source: BIS Statistical Data Warehouse and ECB Statistical Data Warehouse. – The chart represents the policy rates set between 2010 and 2020 by the Central banks of the following jurisdictions: Switzerland, Denmark, United Kingdom, Japan, Sweden, United States, and Euro Area. For Euro Area, the chart represents the ECB deposit facility rate.

Cutting interest rates has historically been central bankers’ primary tool for fighting business-cycle recessions.⁴ However, the implications of a prolonged period of low and often negative rates are not clear, as in the medium and long run several mechanisms come into play.

First, a flattened yield curve (Figure 2) – especially if accompanied by other factors, such as low inflation expectations, GDP growth and employment, exerting downwards pressure on aggregate demand and on the demand of funds (Carletti and Ferrero, 2017) – reduces spreads between short-term and long-term rates and, lastly, jeopardizes banks’ capacity of profiting from the maturity transformation activity, typically the most significant driver for banks’ earnings.⁵ Literature provides robust evidence on the negative effects of low interest rates on banks’ net interest margin (NII). For

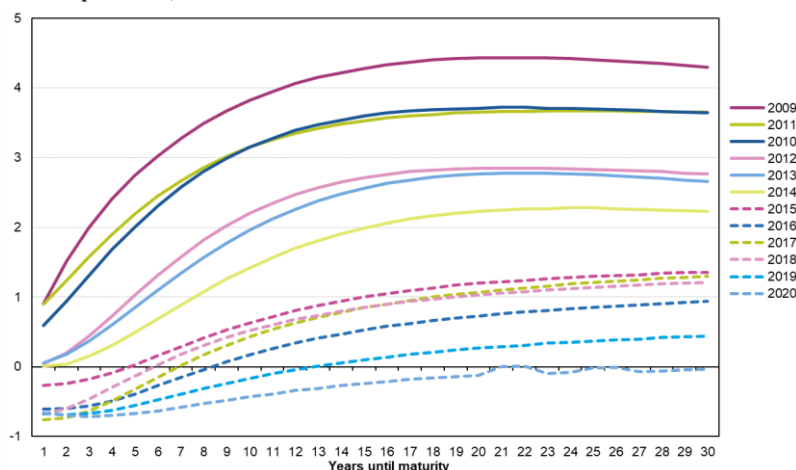
³ Nominal and real interest rates have been decreasing since the mid-1980s and reached historical low levels in the aftermath of the global financial crisis (Carletti and Ferrero, 2017). According to the ESRB (2016), there are two main views as to the main drivers of interest rates in recent years, one relating to cyclical (“financial cycle”) factors and the other to structural (“secular stagnation”) ones. According to the “financial cycle” view, economic agents accumulated excessive debt in the period leading up to the global financial crisis, which later led to an extensive deleverage. According to the “financial cycle” view, the recession following the GFC and the accompanying monetary policy responses by major central banks had a long-term impact on interest rates.

⁴ Under a traditional perspective, a temporary reduction in interest rates acts as a boost for the economic activity, as it is likely to translate into lower funding costs for intermediaries, higher assets and collateral value, lower default risk, thus attracting investors’ funding and favouring lending. In this context, a cut in rates leads to steeper yield curves, as it is not likely to transmit to long-term rates.

⁵ The margin compression is likely to affect not only new issuances, but also existing ones, especially for banks with relatively high volumes of floating rates exposures (Carletti and Ferrero, 2017).

example, Claessens et al. (2018a) quantify a more than proportional drop in banks' NII stemming from a one percentage point interest rate drop, with this effect greater at low rates; Coleman and Stebunovs (2019) find consistent results. Impacts on NII appear more pronounced for smaller banks (Claessens et al., 2018a; Lopez et al., 2018), mainly those with high deposit rates (Urbschat, 2018).

Figure 2 – Euro yield curve (*per cent*)



Source: Eurostat. – Zero-coupon yield curve spot rate for AAA-rated Euro Area central government bonds.

Second, negative rates create rigidity in banks' funding costs, as banks tend to refrain from passing negative rates onto customers. This further reduces the net interest margin, in particular for small and mid-sized banks mainly relying on deposit funding. Moreover, also in case negative rates are passed through deposits, empirical evidence shows that this translates into lower lending rates, thus offsetting the benefits of lower rates on deposit taking (Altavilla et al., 2019; Bottero et al., 2019).

Third, the LIRE may also increase the competitive pressure from non-bank financial intermediaries. Indeed, the low returns on bank deposits make them unattractive as a saving and investment vehicles for households and NFCs, who may be incentivised to move savings to alternative and more profitable investments, such as MMFs and investment funds (ESRB, 2016, 2021).

However, there is also evidence of other compensating factors for banks' profitability (Albertazzi and Gross, 2020). Reduced borrowers' credit risk favoured by declining rates may lead to an increase in lending, thus triggering a quantity effect on interest margins that (at least partially) offsets the price-based reduction.⁶ At the same time, the reduced credit risk also diminishes banks' need to accumulate loan loss provisions and increases investors' appetite for NPLs, increasing the recovery rates on this type of assets (Fell et al., 2017; Grodzicki et al., 2018; Visco, 2016). Banks would therefore reduce their overall risk profile and capital needs.⁷ Finally, banks are incentivized to exploit

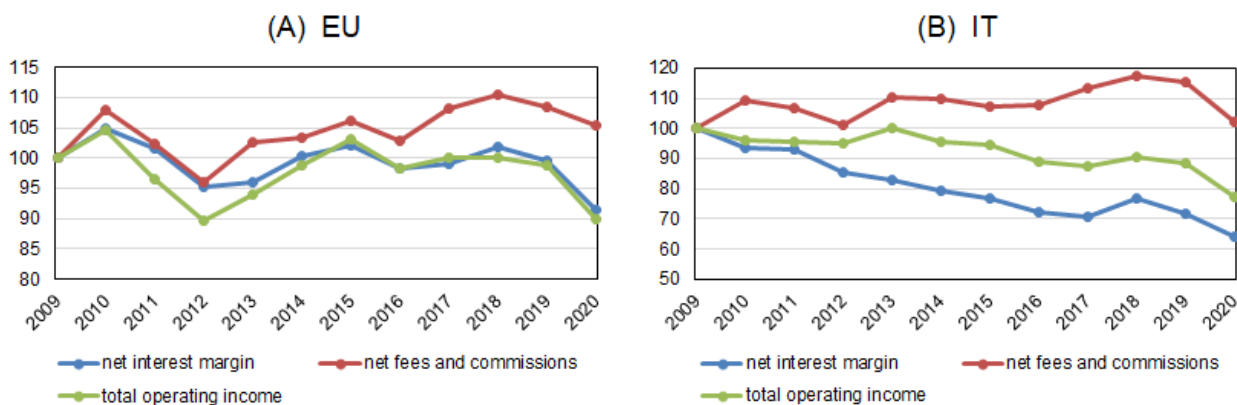
⁶ As reported by SSM (2018), loan growth compensated for most of margin compression. In this regard, evidence shows that half of the significant institutions supervised by SSM have increased their net interest income in the previous three years.

⁷ In this respect, a strand of literature suggests that low interest rates would trigger risk-taking behaviours from banks, aimed at compensating falling profits by investing in riskier sectors and/or relaxing lending standards (among others, Allen et al., 2011; Dell'Ariccia et al., 2014). However, such studies mainly analyse the short-term consequences of low interest rates and do not typically take into account the flattening of the yield curve (Carletti et al., 2020). On the contrary, as shown by Ferrero et al. (2019), the nexus between the slope of the yield curve and credit risk-taking seems to be weak or insignificant. They find that banks, on average, tend to reduce – not increase – ex-ante risk-taking on new loans to firms in response to a flattening of the yield curve.

other non-interest based profitability levers, such as those based on fees and commissions (NCFI) (Borio et al., 2017; Lopez et al., 2018). At the same time, these developments make banks' balance sheets more vulnerable to possible sudden and disordered repricing of risk premium.

In sum, LIRE may have contrasting effects on banks' business and profitability. In the medium-to-long run, reduced margins may hamper banks' ability to accumulate capital (De Guindos, 2019; Hernández de Cos, 2019) and, in turn, their solvency and capability to supply credit. Additionally, competition for credit and deposit-like savings products from non-bank financial intermediaries is expected to intensify, facilitated by technological innovations and investors' search for yield (ESRB, 2016, 2021). On the other hand, banks may exploit commission-based sources of profits⁸ as well as expand the credit supply by leveraging on higher demand and lower credit risk induced by low interest rates. So far, the evidence suggests that revenues stemming from commissions and fees did not offset the decrease in NII, experiencing also a decline in the last years (Bank of Italy, 2019a; ECB, 2019; Figure 3).

Figure 3: Net interest income, net fees and commission and total operating income over total assets of European (panel A) and Italian banks (panel B) (index: 2009=100)



Source: Bank of Italy, consolidated supervisory reports for banking groups and individual supervisory reports for stand-alone banks, and EBA Risk Dashboard.

2.2 Regulation

The GFC represented an enormous shock for the functioning and resilience of the banking industry. The widespread dimension of the crisis required an unprecedented response from the authorities, coordinated by the Financial Stability Board (FSB) and the Basel Committee for Banking Supervision (BCBS).⁹ The regulatory reforms following the global financial crisis touched upon multiple aspects and aimed at correcting the imbalances previously accumulated in the banking system. The revision of the prudential regime of banks (Basel III) represented the major intervention, concerning all the main aspects of banking: capital requirements, risk management, and containment of financial leverage. In addition, the reforms have included new liquidity regulations concerning the management of short-term funding (the liquidity coverage ratio) and the balance of the maturity mismatch between assets and liabilities (the net stable funding ratio), a new crisis management framework for orderly bank resolution and changes to management compensation structures. Moreover, the new agreements introduced tighter regulation and supervision for global and domestic systemically important financial institutions. Macroprudential policies and tools were introduced for

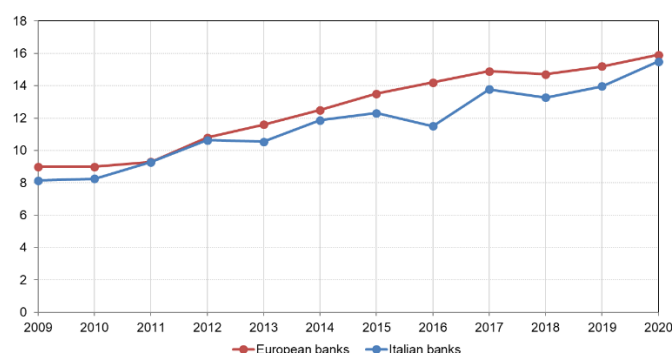
⁸ It shall be noted that NCFI entails heterogeneous activities and sources of profits, influenced by several variables. For instance, it includes profits related to wealth and asset management activity, as well as those related to payment services offered to customers or those stemming from ancillary activities (e.g. the sale of insurance products).

⁹ See the priority areas identified in FSB (2011).

the first time to adopt a more system-wide perspective. In the EU the reforms were accompanied by important changes to the institutional architecture through the creation of the European Systemic Risk Board (in charge of overseeing systemic risk) and of the Banking Union (aimed at reinforcing and coordinating supervision and resolution policies).

The reforms adopted in the last decade increased financial stability. Indeed, the new regulatory framework has contributed to strengthen the resilience of the banking sector, increasing bank capital in all European jurisdictions (Figure 4). In Italy, for instance, CET1 ratio was at about 8 per cent at the end of 2009; last data as of 2020 year-end show an almost doubled value (15.5 per cent). However, this has put pressure on bank profitability since the significant reduction in risk, with the decrease of exposure towards assets with high risk weights in favour of safe and liquid assets, also resulted in a reduction in returns and, to a lesser extent, to an increase in the overall costs, such as compliance and operational ones (Carletti et al., 2020).¹⁰

Figure 4: CET1 ratio of European and Italian banks, 2009-20 (per cent)



Source: Bank of Italy, consolidated supervisory reports for banking groups and individual supervisory reports for stand-alone banks, and EBA Risk Dashboard. – The figure shows the average Core Tier 1 up to December 2013, while it presents the Common Equity Tier 1 from 2014. Data for 2020 are provisional.

The reform has reopened the debate on the costs and benefits of capital requirements and their effects on the banking industry, bank strategies and business models.¹¹ The literature suggests that better-capitalised banks tend to better exploit profitable business opportunities, have lower funding costs and provide more credit (Boissay et al., 2019). In the long-term raising high quality capital increases both banks' solvency during downturns and their profitability (Bogdanova et al., 2018; Calomiris and Nissim, 2014). Moreover, a stronger capital base improves banks' ability to support economic growth even when adverse shocks occur, reduces the likelihood of financial crises and limits their impact on the economy (Conti et al., 2018). However, this may not be true in the short run, when banks may comply with stricter capital regulation by adjusting the denominator of the capital ratios (e.g. increasing tightening in credit standards), therefore limiting lending to reduce their risk weighted assets.¹² In particular, banks could decide to meet, at least partially, the requirements to increase their capital ratios by reducing their exposures to customers or charging higher loan

¹⁰ Moreover, holding all else equal, by construction, an increase in capital reduces the return on equity (ROE).

¹¹ The banking regulation generates significant externalities for the financial system, affecting the overall welfare of agents in different ways. However, in this section we mainly focus on the effects of regulation on banks' activities.

¹² The potential reduction in bank lending may have a different impact on borrowers, depending on whether and how much they are able to substitute bank lending for alternative funding sources, such as non-bank financial institutions and bond markets (Gropp et al., 2019). Moreover, the literature evidences that risk-taking is a function of the bank's capital structure (Dell'Ariccia et al., 2014).

interest rates, reflecting the greater cost of equity compared with other sources of funding (Conti et al., 2018).

Looking forward, the global regulatory framework will be complemented with the implementation of the final package of Basel III reforms endorsed by the BCBS in December 2017 (BCBS, 2017). The revisions are aimed to restore credibility in the calculation of risk weighted assets and improve the comparability of banks' capital ratios.¹³ The implementation date has been deferred by one year, to 1 January 2023, to respond to the economic impact of the pandemic; the accompanying transitional arrangements for the output floor have also been extended by one year to 1 January 2028. Also the implementation of the revised market risk framework finalised in January 2019 has been postponed to 1 January 2023 (BCBS, 2019). Preliminary estimates by the ECB and the EBA on the macroeconomic impact of the final Basel III rules, as requested by the EU Commission, show that the reforms will produce permanent long-term benefits in terms of greater resilience of the economy to adverse shocks, against some modest transitory costs. The magnitude of the latter for the European economy will critically depend on how the implementation of the new standards will take into account the European specificities (e.g. maintaining the SME supporting factor in light of the role of the SMEs and their dependence on bank financing).

In sum, the European regulatory framework has been significantly revised in the last years resulting in more capital and of better quality as well as better supervision on risks. New rules will be implemented in the next years to finalize the Basel III reform. The reforms were mainly focused on strengthening banks' resilience to traditional risks (e.g. credit, market, liquidity risk). Other risks mainly stemming from developments in technological innovation may nonetheless become more significant (e.g. increasing operating risk and cyber risk; see Section 4.3). These risks will require an accurate monitoring. Finding the right balance in the rules is not easy. On the one hand, an excessively strict regulatory framework might jeopardize the adoption of new technologies and discourage the entry of new players. On the other hand, regulators could focus on risks rather than on entities, based on the principle that "same activity, same risk, same supervision and regulation" (ECB, 2020b). This approach seems better suited to guarantee financial stability as well as consumer and investor protection in a context of rapid financial innovation.

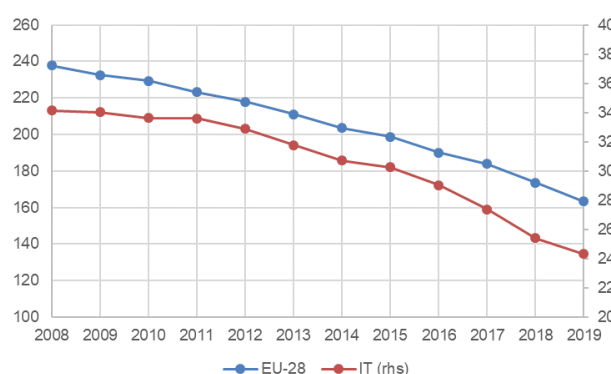
2.3 Technological innovation

Technological innovation has profoundly affected the banking industry over time. In the last fifty years, the business of banks has rapidly changed in response to innovations in information and communication technology. Starting with the adoption of ATMs in the 1970s banks have implemented telephone banking and more recently online banking. In particular, the diffusion of the internet in the late 1990s has favoured the entry of new banks operating without physical branches, while the "local" dimension of banks, represented by the branch network, has progressively lost relevance. The number of bank branches both in Europe and in Italy decreased by around 30 per cent from 2008 to 2019 (Figure 5). The new modalities through which intermediaries provide services to customers reduce the costs and increase convenience for customers.¹⁴

¹³ The main revisions are related to: i) the enhancement of the robustness and risk sensitivity of the standardized approach for credit risk, credit valuation adjustment (CVA) risk and operational risk; ii) the introduction of a set of constraints to the use of the internal ratings-based approach; iii) the introduction of a leverage ratio buffer to further limit the leverage of global systemically important banks (G-SIBs); iv) the replacement of the existing Basel II output floor with a more robust risk-sensitive floor.

¹⁴ In Italy, for instance, the operating expenses for an online current account are on average about 80 per cent lower than the costs of a traditional bank account (Bank of Italy, 2020d).

Figure 5: Domestic bank branches in Europe and in Italy (*thousands of branches*)



Source: European Banking Federation and Bank of Italy.

New technologies allowed banks to improve the management of information, pushing them to rethink their internal processes. Indeed, innovation has affected all lines of business by increasing automation of several middle and back office processes, as well as more complex and high-value services (e.g. automated trading). Some institutions have been developing data analytics, machine learning and big data techniques to support lending, asset management, anti-fraud prevention, and other key business segments.¹⁵ The adoption of new technologies in financial services varies across countries:¹⁶ emerging markets are at the forefront of this process (Ernst & Young, 2019). Indeed new technological solutions are fast adopted where the financial inclusion is lower (Yadav, 2020).

Some concerns about banks' capability of adopting technology effectively have been raised (Stulz, 2019), although after the Covid-19 outbreak intermediaries have generally demonstrated a significant flexibility by switching quickly to remote operations (Cho and Litan, 2020). Data are often not organized in a way that allows an immediate implementation of new analytic tools; unwieldy and outdated IT systems may make banks vulnerable to the entry of new competitors as well as to operational and compliance issues (BCG, 2020; Carletti et al., 2020). Also before the pandemic crisis, a survey indicated that less than 20 per cent of worldwide bank executives felt that their institutions were well-prepared for the future (PwC, 2020).

Overall, accommodating the disruptive forces of a fast-paced digitization will probably represent the most demanding challenge for banks in the medium term (see Section 3.1). The thesis that banks are too slow to modernize their core operations has cyclically emerged over time: for example, already in 1994 Bill Gates famously compared banks to dinosaurs, predicting that they would have been bypassed (Bloomberg, 2015). So far, however, they have proven able to adapt to the changing competitive landscape.

2.4 Increasing competition

Some business sectors have experienced an increasing competition during the last decade, due to the entry of non-bank intermediaries (i.e. shadow banks) and FinTech companies in the financial

¹⁵ Based on the results of a survey on a sample of Italian banks, in the four years 2017-20, more than half of FinTech-related investments by the banking system was spent on applications for mobile devices; institutions also invested heavily in "big data" analytics, technologies for the development of digital platforms, cloud computing and artificial intelligence (Bank of Italy, 2019b).

¹⁶ In Italy, for example, the share of customers accessing banking services via digital channels reached 80 per cent in 2019, and the large majority of intermediaries provides payment services and asset management through these channels (Bank of Italy, 2020d).

services sector. The former category includes a broad set of entities, outside the regular banking system, that are involved in credit intermediation, such as money market funds and asset management companies.¹⁷ The latter group refers to companies providing financial technology services¹⁸, which have rapidly grown relying on the potential cost-cutting allowed by digital technologies to reduce financial frictions (Bofondi and Gobbi, 2017). After the GFC (from 2007 to 2015) in the US, for instance, shadow banks increased the market share in financial intermediation from 14 to 38 per cent, driven by regulatory arbitrage and by financial technology, while FinTech companies have increased their market share from 5 to 15 per cent over the same period (Buchak et al., 2017).

New players may rely on competitive advantages with respect to traditional banks: less regulatory restrictions, more flexible cost-structure (e.g. no branches and often digital-based), and declining barriers to entry in several sectors. In particular, the size of FinTech across countries is generally related to the economic development and financial market structure: the higher a country's income and the less competitive its banking system, the larger the FinTech credit activity¹⁹ (Carletti et al., 2020). The significant presence of new entrants in some business segments is putting additional downward pressures on interest income as well as on fees for banks. For instance, in credit supply, FinTech lending entails increased cost-efficiency and a significant reduction in complexity for accessing products and services, in terms of compression of both application time²⁰ and reduction of compliance burden for customers (e.g. provision of documents or other information to the bank). Similarly, analysts are forecasting falling fee income for banks in business segments subject to technology-based market erosion, such as payments and transaction banking (IMF, 2020).

Banks are reacting to the entry of new competitors into financial services market in different ways (Cho and Litan, 2020). The incumbent banks are either collaborating with the new entrants or trying to prevent their entry into financial services, depending on the specific segment of the market being contested as well as from the legacy technologies of incumbents (see Sections 3.1 and 4.4).

The technological revolution and the entry of new players may also introduce new risks that represent big challenges to regulators. For example, the competition in the provision of technology-based financial services introduces a new trade-off between access to data (for private providers and for regulatory goals) and privacy of data, leading to several implications for regulation and data protection. This requires an increasing coordination, both at national and international level. New risks also may come from outsourcing and commercial agreements, especially when they involve non-bank operators. In fact, these entities, fostering their products from a commercial point of view in order to recover the initial investments and to maximize their returns, may neglect some security aspects, exposing themselves to risks that would also reflect on those intermediaries who entrusted them with the provision of some services (Perrazzelli, 2020a). Risks may also come from an excessive concentration on the outsourcing market, with potential systemic implications; the recent European Commission Digital Operational Resilience Act (DORA regulation) deals with this issue. In addressing all these challenges, regulators should continue to rely on three key principles (Perrazzelli, 2020b): technological neutrality, centrality of risks and equality of rules with equal risk. The first principle implies that the regulator does not have to condition the access to the financial services to the use of certain technologies instead of others. The second principle points out the centrality of risks in regulatory and supervisory decisions, taking into account the proportionality of the requirement. The third principle concerns the need of a same requirement for the same risks, to guarantee protection of customers and level playing field between intermediaries.

¹⁷ See Gola et al. (2017) for a discussion on the different definitions of shadow banking.

¹⁸ The Financial Stability Board defines FinTech as “technology enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on the provision of financial services”.

¹⁹ However, the paper reports that there are some exceptions, notably the United States and China.

²⁰ For example, Fuster et al. (2019) show that FinTech lenders process mortgage applications in the US market about 20 percent faster than other lenders, even when controlling for detailed loan, borrower and geographic observables.

The creation of the Banking Union paved the way for potential fiercer competition within the banking industry. So far, however, data suggest that the European banking market is still quite fragmented: since the inception of the SSM there are some sign of increasing integration in the wholesale market, but only small progresses in cross-border retail bank lending (ECB, 2020c).

A greater degree of integration could be reached by completing the European banking union and making further progress with the European capital markets union. Well developed and integrated capital markets can make important contributions to economic growth, financial stability and competition, in particular by improving funding access for firms and households. These effects are more likely to materialize with further cross-border bank consolidation among euro area countries (see Section 3.1).

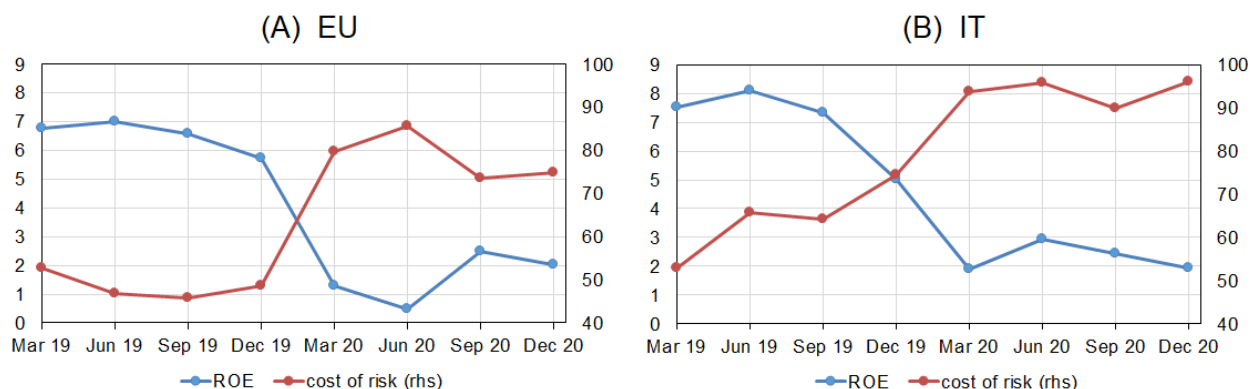
In sum, the competition in the banking sector has recently increased for the entry of new entities that are able to rely on some competitive advantages with respect to incumbent intermediaries. This market development has changed how banks are competing and it is also representing a challenge for regulators. Moreover, completing the banking union and capital markets union will increase the development and integration in the euro area financial market; this will contribute to increase competition among banks and sustain economic growth.

2.5 The effects of the Covid-19 pandemic

The spread of the Covid-19 pandemic led to an abrupt and deep contraction in the euro area economic activity, the worst since the GFC. The euro area GDP experienced a drop of around 6.8 per cent in 2020 (Eurostat, 2021), as large parts of the economic system have been forced to a prolonged standstill. Financial markets reacted with a sharp and sudden increase in volatility as well as with abrupt corrections in stock prices and risk premiums and increasing pressure on market liquidity. Large clusters of the real economy took a heavy hit – though partially smoothed by public countermeasures (see below) – as the social distancing measures caused severe cash flow strains for firms (in some cases up to 100 percent of the previous turnover) and worsening income prospects for households (ECB, 2020a).

Central banks and other authorities both at national and international level have implemented a number of measures aiming at ensuring access to liquidity for banks and facilitating the provision of credit to the economy. Regulators and supervisors have somewhat eased some prudential requirements and have introduced more flexibility in the criteria for loan classification as well as the implementation of IFSR 9, freeing resources for lending in order to support the recovery (Bank of Italy, 2020b; ECB, 2020d, 2020e).

Figure 6: ROE and the cost of risk of European (panel A) and Italian banks (panel B) (per cent and basis points)



Source: Bank of Italy, consolidated supervisory reports for banking groups and individual supervisory reports for stand-alone banks; EBA Risk Dashboard. – Cost of risk (rhs, basis points) is estimated as the ratio of loan loss provisions to total gross loans.

The impacts of the pandemic on the banking sector are multifaceted. In the immediate aftermath of the crisis, banks' returns were remarkably strained.²¹ Profits were dented by the sharp increase in loss provisioning²² (Figure 6) and the compression of net interest income stemming from the erosion of cash inflows and the further decrease of loan rates, driven by the exceptional measures taken by the ECB. However, the economic support measures introduced by the European governments, the Eurosystem's expansionary monetary policy, and the measures adopted by supervisory authorities fostered an increase in the volume of new loans and prevented a further deterioration in credit quality due to a wave of corporates and households defaults (Bank of Italy, 2020c; ECB, 2020f; SSM, 2018).²³

In the medium term, all the above effects could trigger a generalized increase in credit risk, posing additional issues in terms of profit generation, capital erosion and credit supply. Indeed, there is shared consensus that a long wave of credit losses may materialize in the coming months (Carletti et al., 2020; McKinsey, 2020): corporate vulnerabilities increased in the last months, in some cases up to the levels of the sovereign debt crisis. Therefore, despite the success of the mentioned policy in bridging firms and households' solvency during the emergency, the extension of the restrictions related to the pandemic and the persisting lack of adequate turnover are increasing the uncertainty on borrowers' ability to sustain debt servicing in the medium term. This seems also confirmed by the increasing tightening in credit standards²⁴ and the shift towards lower risk assets, such as central bank reserves and sovereign exposures (ECB, 2020f). In addition, the extension of public support measures may affect the recovery. On the one side, a too early and sudden withdrawal is likely to generate undesired cliff-effects on banks' borrowers. On the other side, an excessive prolongation may increase risks of firms zombification, capital misallocation, banks' ability to detect risk and balance-sheets' opacity (Carpinelli et al., 2020; ECB, 2020g).

In addition to the impact on credit risk, the pandemic will likely have additional consequences for banks. First, it has accelerated the ongoing digitization of banking services. Indeed, the health emergency put under severe strain banks' operational resilience and business continuity, as social distancing measures impacted on both front and back office operations. Banks have been forced to quickly roll-out contingency plans to ensure the continuity of services by recurring to remote working, relocating some activities (e.g., outsourcing of services to third-party providers) and reorganizing teams. As for front office services, many branches have been temporarily closed and customers have been encouraged to rely on digital banking (EBA, 2020). This process will accelerate the reorganization of the workforce in the industry. Indeed, banks will likely decrease the number of professional figures involved in low-value and standardized banking services (e.g., execution and settlement of orders) in favour of specialized professionals aimed at providing more value-added advisory services focused on specific business segments, such as wealth and asset management (see Sections 4.4 and 4.5).

Moreover, the pandemic will reinforce and prolong also the LIRE and may lead to changes in regulation. Interest rates are expected to remain low for even longer than the pre-Covid expectations,

²¹ The aggregate return on equity (ROE) of euro area significant institutions fell to around 2 per cent at the end of the second quarter of 2020, with some banks reporting a negative ROE.

²² According to ECB estimates, in the first half of 2020, significant banks' loan loss provisions rose to 0.76 per cent of loans (on an annualized basis), more than 2.5 times the level a year earlier. As reported by McKinsey (2020), globally, loan loss provisions in the first three quarters of 2020 surpassed those of the entire 2019, and by 2021 they could exceed those of the GFC.

²³ In particular, as reported by the ECB (2020b), the volume-effect on NII for euro-area banks generated an increase of around 3 percentage points in the first half of 2020, fully outweighed by the margin-effect, which caused a drop in NNI of almost 4 percentage points.

²⁴ According to the ECB's last Bank Lending Survey (October 2020), credit standards for both enterprises and households tightened in the third quarter 2020 and increasing tightening is expected also in the fourth quarter.

driven by the accommodative emergency policies and the weakened general outlook.²⁵ The post-Covid environment could also prepare the ground for further regulatory intervention, characterized by a greater attention to improve countercyclical tools to protect against sudden events and, at the same time, mitigate potential “procyclical traps” stemming from the existing regulation.²⁶ In this respect, the already existing proposal of a redesign of the combination of prudential buffers could gain new momentum towards the creation of wider room for cyclical buffers.²⁷

All in all, the pandemic’s legacy will be challenging for banks, both in terms of pervasiveness on banks’ business model and time frame, as it will likely have long-lasting effects. On the one hand, banks will face an additional burden on profits and capital soundness stemming from a generalized increase in credit risk, perspectives of persisting low growth and the prolongation of the LIRE. On the other hand, the dramatic – and likely permanent to a certain extent – change in social interaction models and customers’ behaviours will force banks to accelerate the transition towards a more intensive reliance on digital technologies. In this context, banks will be called in the next future to quickly adapt their business models to the new environment.

3. The main medium term trends

In this section we discuss two main medium-term trends that have recently emerged and that will likely produce their effects mostly in the post-Covid world: digitization and demand for green finance. First, we point out to what extent digitization could reshape the activities of banks in the upcoming years (Section 3.1). Second, we describe how the increasing attention to green finance will affect banks’ future performance (Section 3.2).

3.1 Digitization

The digitization of banking will likely be the main driver of the future evolution of the industry. The acceleration of technological innovation in the banking sector, furtherly strengthened by the pandemic-related effects (see Section 2.5), is changing banks’ internal processes and is fostering the use of digital distribution channels. The increasing digitization will lower the cost of providing specific services (e.g. automatizing internal processes) and allow banks to innovate by introducing new digital-based products (e.g. “smart” budgeting tools for retail customers).

Digitization is having an impact on all business lines, especially those more exposed to information processing. First, lending activities are increasingly affected by the availability of new information about customers, mainly non-financial, and from alternative sources (i.e. “big-data”), as well as new data processing techniques (e.g. machine learning and artificial intelligence).²⁸ The development of new analytical tools has enabled the examination of abundant data on customer choices, delivering new insights also for financial decision-making (Athey and Imbens, 2019; Boot et al., 2020; Philippon, 2020). Contemporaneously, data sharing are increasing also thanks to “open banking” initiatives (He et al., 2020). Banks can therefore merge information obtained by standardized sources (e.g. credit registers) with new alternative data retrieved from websites, social networks and several different sources, analysing them with new tools. As emerged in the literature (see Branzoli and

²⁵ According to ECB calculations, short-term rates are now expected to turn into positive territory not before 2030, 5 years later than expected in the pre-Covid era (ECB, 2020f).

²⁶ For instance, the impacts of IFRS 9 accounting rules, the effects on the structural component of capital requirements and on the MREL requirement stemming from an increase in credit risk.

²⁷ The potential creation of macroprudential space was already debated at EU level before the pandemic (ECB, 2019).

²⁸ For example, recent analyses show that banks with higher intensity of IT adoption increased their credit more than others during the pandemic (Branzoli et al., 2021). This result was driven both by the supply of online credit services and by bank’s use of digital technologies for credit risk assessment.

Supino (2020) for a review), the adoption of alternative data sources may reduce information asymmetries and provide a better access to finance for opaque borrowers, such as SMEs and those with limited availability of standardized information. In addition, innovative techniques may improve the risk assessment process for lenders by raising the predictive ability of their evaluation models, enhancing borrower screening performances, and increasing their monitoring capacity (Berg et al., 2020; Gambacorta et al., 2019; Moscatelli et al., 2020). This process may have positive effects on financial inclusion, expanding the base of potential customers for banks.

However, the described changes in lending activities may be associated with the emergence of new risks. For example, the use of data-intensive techniques (e.g. deep learning models) may lead to increased uniformity and network interconnectedness across banks because they may likely rely on the same data sources, often with short time series (Gensler and Bailey, 2020). More generally, reducing the role played by “soft information”, accumulated with the interaction between lenders and borrowers, may induce more volatility into firms’ borrowing costs (Boot et al., 2020) and reduce the competitive advantage for banks associated with the establishment of a close bank-borrower relationship (Rajan, 1992; Sharpe, 1990; see Section 4.5).

Digital distribution channels also enable the entry of specialized providers of financial services, increasing the competition in these market segments. Indeed, the rising use of digital services reduces the need of investing in a widespread network of branches, lowering barriers to entry. Two examples are payments and asset management: both are information-sensitive services and, consequently, more exposed to digital transformation.

In payments, the adoption of applications for mobile devices, promoted by the revised Payment Services Directive (PSD2) and the pandemic-related effects, is favouring the activities of FinTechs specialized in online payments. The interest toward this sector is driven by the high potential returns, especially in cross-borders operations, and by the access to a set of highly sensitive data.²⁹ The entry of new entities is generally associated with lower costs and better quality for customers, which in turn lead to reduced margins for banks (Boot et al., 2020; Carletti et al., 2020). An additional recent development in this sector is represented by the diffusion of digital assets associated with payment technologies independent of the traditional channels (e.g. cryptocurrencies). Also many central banks are considering the introduction of a new digital form of central bank money, i.e. Central Bank Digital Currency (CBDC). CBDCs could take several forms with a different impact on banks’ activities (BIS, 2018; ECB, 2020h); indeed each option may be less dependent on (or completely independent from) banks as intermediaries in the payment infrastructure. Despite the uncertainty on their actual impact, the issuance of digital currencies (both cryptocurrencies and CBDCs) will likely allow customers to adopt different payments solutions not relying on bank deposits. An increasing adoption of these instruments may generally reduce the role of banks in the payment system. Bank deposits might be partially substituted by digital currencies, reducing the amount as well as the stability of a main source of funding for intermediaries.³⁰

With regard to asset management services, new digital-based competitors might be particularly able to attract customers by offering user-friendly applications. The intensive use of technologies enables them to provide investment advices by relying on automation, artificial intelligence (e.g. robo-advisors and virtual assistants),³¹ as well as on deep learning techniques to improve operational efficiency, conduct sentiment analysis, and enhance investment returns (Gensler and Bailey, 2020). These competitors may offer investing solutions with optimized risk-return profiles at limited costs.

²⁹ Detailed data on payments can be useful to infer consumer preferences.

³⁰ The LIRE might incentivize the partial substitution between digital currencies and bank deposits as lower returns on the latter instrument make the former more competitive for customers.

³¹ According to a recent report (Statista, 2021), global assets under management of robo-advisors were nearly \$1.1 trillion in 2020, and they are expected to grow at an annual rate of about 26 per cent.

In addition to the threat represented by the entry of new FinTech players, banks are also concerned about the competition of large technological firms, so-called “BigTechs” (BIS, 2019). BigTechs hold a privileged access to customer data (e.g. online purchases and preferences recorded on social networks) and a unique capacity in processing information. In the next years, these entities may exploit the advantages connected with the use of their online platforms to disintermediate banks, interjecting themselves between banks and their customers (Boot et al., 2020; Carletti et al., 2020). In this case, BigTechs might also not offer banking services directly but they could monopolize access to consumer-level data and distribute financial services of third parties (e.g. banks and FinTechs). The appeal of digital banking platforms for customers would be that they could have access to stores – similar to mobile application ones – that can offer the “best” product from different suppliers for each need. The use of digital platforms held by non-bank players as distribution channel would limit the role of banks to an upstream supplier because intermediaries would not have a direct interaction with the customer. The competition between each bank and the other suppliers on the same platform may significantly reduce bank market power and their capacity of providing an integrated range of services (i.e. bundling) for each client (see Section 4.4).

The competition in the provision of services will likely rise also because digital technologies and the increased sharing of financial data make it easier to compare products and prices across banks (Carella and Michelangeli, 2021). The effect for retail customers will be an improvement in transparency and efficiency, while the growing contestability of the banking market will presumably have a negative impact on intermediaries’ performances via reduced margins.

Therefore, the main medium-term challenge for banks is to maintain a pivotal role in the provision and the distribution of financial services in a more digital-based environment. Banks will likely strengthen their competitive position by accelerating a full implementation of new technologies for raising efficiency, modernizing their IT infrastructures, developing digital-oriented products, reducing operating costs for providing competitive services, and maintaining their direct access with customers (BCG, 2020; Boot et al., 2020; Carletti et al., 2020; Cho and Litan, 2020; Oliver Wyman and Morgan Stanley, 2020a). In this context, many banks would likely seek partnerships and collaborations with FinTechs and BigTechs, so called “coopetition”: a situation in which organizations cooperate and compete simultaneously (Bengtsson and Kock, 2014). This process may be challenging for many banks: in a survey among bank executives, less than 30 per cent of US and European respondents evaluated non-traditional players as an opportunity, while the others saw them as a threat (PwC, 2020).

Digitization will also have a significant impact on bank internal organization. More automation may also increase productivity by freeing up resources for not-standard activities. Furthermore, the use of digital services, including banking ones, rose after the pandemic outbreak, diminishing the need of an extensive physical branch networks to interact also with less expert digital customers. This trend represents a cost-saving opportunity for intermediaries, notwithstanding some bounds in cost-cutting process (see Section 4.1). In addition, some banks are using machine learning and other advanced techniques for continuing to rationalize the branch network also in the next years, taking into account demographics, ATM proximity, and nearby competitors (McKinsey, 2020).

However, in the short-term, the digital transformation of banks may be constrained by several factors. The digital transition will likely increase fixed and running costs. The former category includes for instance R&D investments and developments of digital-based products, while the latter consists also of IT infrastructure maintenance and cyber security spending. Additional constraints to the adoption of new technology may depend on an unequal geographical diffusion of digital skills among customers, different perceived degree of competition from other entities, as well as reputational or regulatory concerns.

All in all, the increasing digitization of banking will have significant long-term effects. Banks may exploit the benefits of digital innovation for raising their profitability by reducing operating costs and

increasing scale of production, relying on more automation and new distribution channels. On the other hand, digitization increases competition in the sector by fostering the entry of new players and pushing banks to invest heavily in innovation to face this threat; both processes lead to a compression of earning margins for incumbent intermediaries and will foster a reorganization of the sector (see Section 4).

3.2 *Green finance*

The support to climate transition and the switch to the so-called “green finance”³² represent other increasingly important factors in determining future banks’ performance. Anthropogenic climate change is one of the biggest threats facing our world today. To date, the Paris Climate Change Agreement³³ signed in 2015 represents the most important step to strengthen the global response to the threat of climate change by limiting the global temperature rise. In addition, the EU recently issued the even more ambitious 2030 Climate Target Plan, which aims at reducing greenhouse gas emissions to at least 55 per cent below 1990 levels by 2030 and ultimately achieving climate neutrality by 2050.

The response to climate change translates into policy decisions aimed at pushing the transition to a more environmental friendly economy and, consequently, to a switch from investing in “brown” activities to “green” ones. Those changes will require profound transformations of the real economy and the financial system will therefore be crucial to support and accelerate investments needed to decarbonise the economy (Gianfrate and Peri, 2019). According to estimates of both public and private bodies (IPCC, 2018; Morgan Stanley, 2017; OECD, 2017), additional investments ranging between \$50 and 100 trillion will be needed until 2035 to meet the Paris targets.

In this context, the market-driven reallocation of resources towards sustainable assets represents an opportunity and a challenge for the banking sector. The main channels through which banks can exploit such potential are three: (i) the reallocation of market portfolios via sustainable investment strategies; (ii) the direct financing to green companies/projects; and (iii) the provision of specialized advisory services.

As for the first, the global sustainable investment markets have continued to grow in the last years. Sustainable investments can be defined as “an investment approach that considers environmental, social and governance (ESG) factors in portfolio selection and management” (Global Sustainable Investment Alliance, 2018).³⁴ According to the last GSIA report, at the start of 2018, the market segment of global sustainable assets reached \$30.6.trillion in the major regions, with a 34 per cent increase in two years (Table 1 and Figure 7).³⁵

³² There is no a general consensus on what exactly constitutes “green finance”. For instance, the G20 Green Finance Study Group defines it as the “financing of investments that provide environmental benefits in the broader context of environmentally sustainable development” (G20 Green Finance Study Group, 2016). According to OECD (2021), “green finance is finance for achieving economic growth while reducing pollution and greenhouse gas emissions, minimising waste and improving efficiency in the use of natural resources”. Finally, the European Parliament approved in June 2020 the “Taxonomy Regulation”, containing a framework that determines which activities can be considered sustainable and setting out criteria for investments to be defined as “green”.

³³ The Paris Agreement is a legally binding international treaty on climate change, entered into force on 4 November 2016. Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius. To achieve this long-term temperature goal, countries aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a climate neutral world by mid-century.

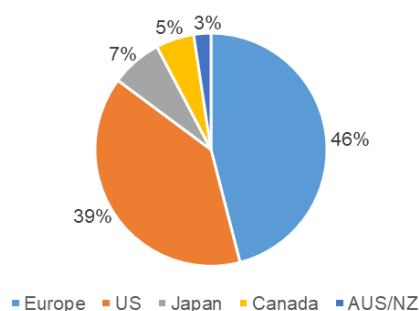
³⁴ See Global Sustainable Investment Alliance (2018) for a taxonomy of sustainable investment strategies.

³⁵ The considered geographical areas are Europe (which holds the highest share, 43 per cent), US, Canada, Japan, Oceania. Such figures include a wide range of investments, spacing from public equities (51 per cent), to fixed income (36 per cent), real estate and private equity (3 per cent each).

Table 1: Growth of sustainable investing assets by region, 2014-18.

Region	2014	2016	2018	Growth per period	
				2014-16	2016-18
Europe	10.775	12.040	14.075	11,7%	16,9%
US	6.572	8.723	11.995	32,7%	37,5%
Japan	7	474	2.180	6671,4%	359,9%
Canada	729	1.086	1.633	49,0%	50,4%
AUS/NZ	148	516	734	248,6%	42,2%
TOTAL	18.231	22.839	30.617	25,3%	34,1%

Source: Global Sustainable Investment Alliance Review 2016 and 2018. – Data in billions of dollars.

Figure 7: Proportion of global sustainable investing assets by region, 2018

Source: Global Sustainable Investment Alliance Review 2018.

Similarly, funds with an ESG mandate have grown by 170 per cent since 2015 (ECB, 2020f). Therefore, the sustainable finance market may represent a significant potential source of revenue opportunities to be exploited: intermediaries investing in green securities may benefit from the rapid growth and increasing investors' appetite by creating and selling ESG-linked funds, green bonds (see below) and assets. According to the Oliver Wyman and Morgan Stanley (2020b) report, ESG-related asset and wealth-management funds have a worldwide revenue potential of around \$70 to 90bn in the next 5-10 years.

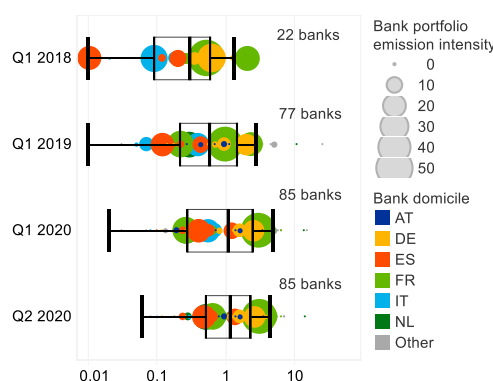
In the same time span, the direct financing of the green economy holds a potential of around \$30bn to be mainly exploited via green bonds and lending of related proceeds (Oliver Wyman and Morgan Stanley, 2020b). Green bonds are bonds with a distinguishing feature: proceeds are used for environment-friendly projects, primarily related to climate change mitigation and adaptation (Alonso-Conde and Rojo-Suárez, 2020; Gianfrate and Peri, 2019).³⁶ Banks may enter this market either by acting as underwriters of green bonds or by directly issuing such securities. Available data show an increasing interest of banks for both segments. As for the first, in 2019, the three leading Euro area banks underwrote more than \$31bn bonds, with a 33 percent increase in volumes to the previous year and almost trebled since 2015 (Climate Bonds Initiative, 2019). Also for direct issuances, banks are increasing their engagement.³⁷ In sum, euro-area banks are gradually increasing the shares of green bond holdings in their portfolios. However, the overall share of green bonds holdings is still low, around 1 per cent of their portfolio, thus showing additional unexploited potential (Figure 8).

³⁶ International Capital Markets Association (ICMA) defines green bonds as "any type of bond instrument where the proceeds will be exclusively applied to finance or re-finance, in part or in full, new or/and existing eligible green projects".

³⁷ In the third quarter of 2020, new green bond issuances set at 13 per cent of total euro area bank bond issuances, up from just 4 per cent in the first quarter of 2020 (ECB, 2020f).

Besides the advantages stemming from the increasing demand of investors for sustainable investments, evidence shows that green bonds are also a convenient source of funding for banks wishing to invest in green projects. Financial markets seem to price green bonds at lower rates than non-green bonds (ECB, 2020f; Gianfrate and Peri, 2019). Lower yields also outweigh the additional transaction costs (e.g. disclosure, monitoring, and report) stemming from the needed efforts to achieve the “green label”.³⁸

Figure 8: Share of green bond holdings in banks’ securities portfolio (percentage share)



Source: ECB Financial Stability Review, November 2020. Bank portfolio emission intensity is the volume-weighted CO2 emission intensity of banks’ non-financial corporate loan portfolio and it is reported by the size of the bubble. Emission intensity is measured in tons of CO2-equivalent emissions produced by a non-financial corporation per million euros of sales. The black vertical lines indicate the range interquartile and the median green holdings for the banks in the sample. The number of banks indicates how many banks have invested in green bonds.

Second, also the channel of green lending presents attracting profitability prospects. Banks financing green companies may *prima facie* profit from the abovementioned lower cost of funding via green bonds. Moreover, there is evidence that ESG-related lending strategies have a positive impact on profitability of commercial banks (Brogi and Lagasio, 2019; Li and Wang, 2014) as well as on their market share (Eisenbach et al., 2014).

Finally, in addition to investment and lending products, banks may develop capabilities to provide premium advice and services to their investors and clients in this area. Sustainable investments entail a large share of reputational risks, as there is no universally agreed standard for classification and rating of green investments (Ehlers et al., 2020). Such investments may therefore underlie “greenwashing”³⁹ practices that, once disclosed, may trigger severe losses. An active role of banks may be therefore crucial to convey credible advice on sustainable investments, enhancing relationships with their customers (see Section 4.5); similarly, intermediaries can sustain corporate borrowers to access green financing facilities and improve their ESG ratings. More broadly, the shift to a low-carbon model will require a profound restructuring of many industries that will require financing and advisory services from wholesale banks (Oliver Wyman and Morgan Stanley, 2020b).

However, the switch to green finance and ESG-related investments entails a number of financial, strategic and reputational risks that banks will be called to manage in order to smoothen the disruptive potential linked to the transition.

³⁸ However, such advantage seems to disappear in secondary markets, as green bonds do not consistently offer lower interest rates than conventional bonds with an almost identical risk profile (ECB, 2020f).

³⁹ Greenwashing is the process of conveying a misleading information about how a company's products or investments are more environmentally sound.

First, as also highlighted above, green-related products still represent a marginal share of banks' portfolios, whereas exposure towards "brown economy" remains elevated⁴⁰. In this context, banks are highly exposed to the so-called transition risk, which refers to the economic and financial impact stemming from the regulatory and technological changes required to achieve the goal of decarbonisation. For the financial sector, the transition risk could materialize mainly through credit and market risks: an increasing demand of "green" products or the introduction of taxes aimed at penalizing carbon intensive industries (i.e. a carbon tax) may negatively affect profitability and equity prices of "brown" corporates (e.g. oil and automotive industries), thus triggering losses in banks' loan and trading portfolios. The assessment of transition risk is highly uncertain because it depends on its speed and timing (NGFS, 2019a).⁴¹

More generally, the high uncertainty in the assessment of risk profile of climate-related investments mostly depends on the lack of common protocols and methodologies for the assessment and measurement of their financial implications. For instance, there is no standardised taxonomy that clearly indicates "green" activities and no common compulsory standards for the disclosure of climate-related financial information, thus hindering transparency and cross-sector comparability (Ferrer, 2019; NGFS, 2019a). Also rating agencies have only just begun incorporating risks arising from an abrupt transition to a low-carbon economy (ECB, 2020a). As a result of a lack of common assessment criteria, banks may misallocate resources and may be exposed to high reputational and legal risks.

In this context, banks willing to exploit the potential of the green transition are called to profoundly restructure their risk management function under several aspects, including in their models used to measure climate-related risk (Ehlers et al., 2020). In particular, assessing climate risk requires the design of multiple scenarios and the adoption of a much longer forecasting horizon than usual (Ferrer, 2019). In this respect, a support from regulators and supervisors is crucial.⁴² Indeed, a number of international regulatory bodies – including central banks – undertook several initiatives aimed at promoting (and governing) the transition of the banking and financial system towards a greener footprint. In 2016, the FSB created the Task Force on Climate-related Financial Disclosure (TCFD), whose main purpose was to analyse the main financial risks connected to climate change. After being suspended in 2018, the works of the Task Force have been resumed in 2021 under the Italian G20 Presidency. In this context, the Presidency is pushing the G20 agenda on the support of the financial system to the transition to a greener and more sustainable economy. In particular, one of the main tasks of the Presidency concerns the data need of the financial sector to better manage climate related risks, and on the closing of data gaps (FSB, 2021).

In 2017, several central banks and supervisory authorities around the world – including Bank of Italy – created the Network for Greening the Financial System (NGFS), aimed at sharing experiences

⁴⁰ As mentioned above, green bonds represents only about 1 per cent of banks' portfolios. On the other side, Oliver Wyman and Morgan Stanley (2020b) estimate fossil fuel sectors being currently worth around 10-15 per cent of wholesale banking sector revenues.

⁴¹ According to an ECB impact study (ECB, 2020a), a one-to-two notch downgrade applied to climate-sensitive sectors would trigger an increase in the euro area banking system losses up to 60 per cent. Moreover, Faiella and Lavecchia (2020) measure Italian banks' exposure to transition risk based on the composition of business lending by sector of economic activity. They find that Italian banks are highly exposed to transition risk, as the share of loans to firms exposed to transition risks stood at between 38.5 and 52.4 per cent (between 7.5 and 10 per cent of total assets). Compared with Spain and the Netherlands, the only countries for which comparable studies are available, these values appear higher than the exposure of Spanish firms but lower than the levels recorded for the Netherlands.

⁴² Already existing initiatives include: the recommendations by the FSB Task Force for Climate-related Financial Disclosures (TCFD), an initiative of the Financial Stability Board for the corporate next disclosure of financial risks associated with climate change; the EU ongoing international platform on sustainable finance, which also aims to create a common taxonomy for climate risk assessment; the ECB Guide on climate-related and environmental risks, that explains how the ECB expects banks to prudently manage and transparently disclose such risks under current prudential rules.

and developing best practices for the analysis and management of climate-related financial risks.⁴³ At EU level, the European Parliament recently issued the “Taxonomy Regulation”⁴⁴ establishing a framework to facilitate sustainable investments. It sets out a number of classification criteria to identify sustainable activities and green investments. The main purpose of the Regulation is to create a common language and a level playing field for the assessment, evaluation and comparison of green-related initiatives and to minimize the mentioned risks of resources misallocation stemming from greenwashing practices.

The SSM published in 2020 a list of non-binding supervisory expectations (SSM, 2020), which suggest the inclusion of climate-related risks within the evaluation of credit-risk profile of borrowers, the set-up of an adequate governance to manage such risks, adequate disclosure standards, the definition of adequate metrics, indicators and scenario analyses. Finally, the SSM suggested to extend such expectations also to less-significant institutions.

In sum, the green revolution may constitute a valuable option for the banking sector to sustain profitability and business opportunities. The transition towards a more green-based business model is likely to have less disruptive effects on banks’ organization than the digital transformation. However, banks could exploit such option under several perspectives, ranging from market investments to direct involvement in financing green projects via green bond and lending. The engagement in such market segments has also the potential for giving renewed breath to relationship banking practices, currently threatened by the rise of tech-based competitors. Banks will however be called to manage the transition to the green economy by designing a smooth path for divestments from brown sector and by restructuring the current risk assessment practices and methodologies in order to be able to include climate risk drivers.

4. Adaptation of the business model

Taking into account the challenges described in the previous sections, we next discuss how intermediaries will likely adapt their business models to the new environment. Banks will probably improve their digital capabilities through massive IT investment and will try to support the increasing demand for green finance. These changes will likely be accompanied by a significant reorganization of banks’ activities to provide a real improvement in terms of performances. Intermediaries will likely adapt their business models leveraging on economies of scale and scope. First, an increase in scale will be crucial to gaining efficiency by continuing their cost-cutting process (Section 4.1) and accelerating the consolidation process (Section 4.2), as well as to manage the new risks arising in a more digital world (Section 4.3). Second, banks will likely try to benefit from economies of scope, rethinking in which markets they want to compete (Section 4.4) and further relying on relationship banking advantages (Section 4.5).

4.1 Cost reduction

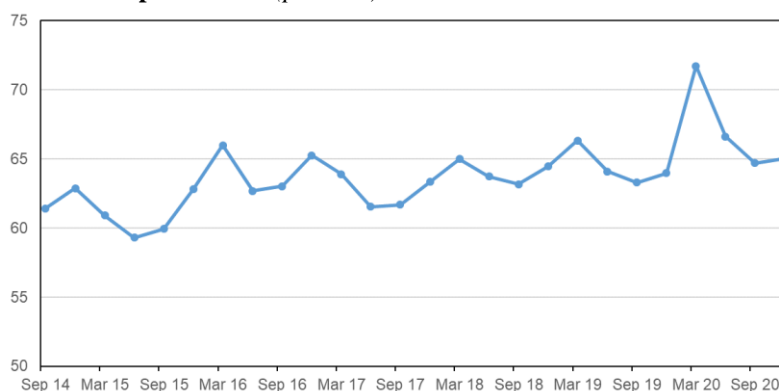
In recent years European banks have been addressing their weak profitability mainly through cost-cutting strategies. The sources of that weakness can be surely attributed to different factors, such as the LIRE and the competitive challenges arising from outside the sector, but also cost inefficiencies play an important role. The aggregate cost-to-income ratio of European banks was at 66.6 per cent in the first half of 2020 (EBA Risk Dashboard), the highest value since 2014 and also high relative to

⁴³ The NGFS issued, among other documents, a guide for supervisory authorities (NGFS, 2020a), two guides for sustainable investments (NGFS, 2020b, 2019b) and a first set of standard climate-related scenarios to support central banks and supervisors to undertake homogeneous climate stress tests (NGFS, 2020c).

⁴⁴ Regulation (EU) 2020/852.

international peers (Figure 9). In the last years, banks were not able to offset the decrease in revenues, mainly due to cyclical factors, with a significant decrease in operating costs. In Italy, for instance, the consolidation process and the restructuring actions, put in place mainly by bigger banks, caused a reduction of costs by 7 per cent in the last ten years; but over the same time period revenues declined by 12 per cent.

Figure 9: Cost-to-income of European banks (per cent)



Source: EBA Risk Dashboard.

More recently, the pandemic affected banks' costs in two opposite ways. On the one side banks reported extraordinary expenses aimed at protecting the health of both the employees and clients, together with costs borne to ensure business continuity. On the other side, banks reported a significant decline in the other administrative expenses. A large number of these expenses, indeed, have been reduced as a consequence of the lockdown and for the massive spread of smart working, such as some indirect staff costs as travel, consulting, real estate and marketing expenses.

In the near future, banks will likely continue their cost-cutting process. Market reactions to new business plans tend to be indeed favourable in case of reliable cost reductions sometimes more than that of projected challenging increase in revenues.⁴⁵ Market analysts envisage a further reduction of the European banks' operating costs in the near future, thanks to the restructuring initiatives aimed at reducing staff expenses and at rationalising the network of branches (McKinsey, 2020).⁴⁶ However, on a limited time horizon, a further reduction in costs will be a big challenge for banks, since large part of these are rigid and there is little room to adjust the operating costs on the evolution of profitability. An analysis on a sample of worldwide wholesale banks indicates that variable costs are about 20-30 per cent of the overall cost structure and that around 5-10 per cent of costs can be reduced in a downturn without a major change in business activities (Oliver Wyman and Morgan Stanley, 2020b).

Therefore, the costs' evolutions will likely depend on the structural changes deriving from the pandemic and on the efficiency gains obtainable through an increase in scale. Indeed, an opportunity for banks arising after the health emergency is to make structural the "cyclical" cost reduction, through an increasing and careful use of smart working and remote distance communications. In particular, banks may exploit the heavier reliance on digital banking to further reduce physical branch networks. However, the choice of reducing the branch network will also depend on the characteristics

⁴⁵ A revenue growth, indeed, has a greater degree of uncertainty because it does not only depend on the strategic choices of the banks but it is also affected by the actions undertaken by the competitors and by the evolution of the macroeconomic scenario of the countries in which the banks make business.

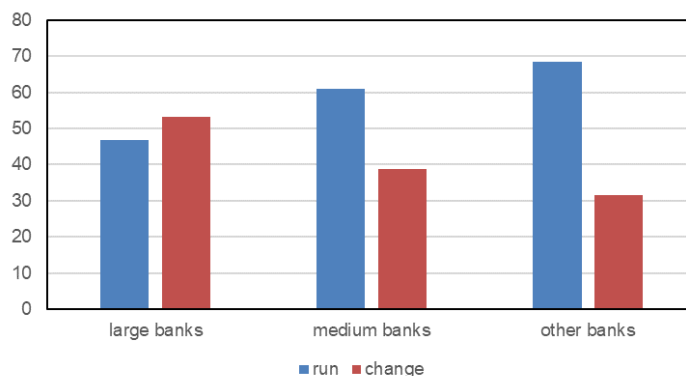
⁴⁶ The McKinsey report predicts that about two thirds of the expected reduction in costs of larger global banks in the medium term will derive from the shift to digital, the reconfiguration of the branch network and the redeployment of the workforce.

at the country level (e.g. labour laws) and at the local market level (e.g. population density, the adoption of digital devices, and competition in the area served by the branch).

Second, size is an important factor to explain the future costs' evolutions as the cost-cutting process may be harder for smaller banks. The cost reduction observed during the last year was not homogenous across intermediaries but it was concentrated in the largest banks.⁴⁷ Smaller intermediaries have experienced greater difficulty in reducing costs as they have a lower share of the overall costs that can be easily compressed. Indeed, a large part of the other administrative expenses (e.g. real estate expenses, advertising, marketing and communication costs), which experienced a significant reduction as consequence of the pandemic, is correlated with the average size of the banks. Moreover, size plays an important role in determining the costs associated with the digitization process of the banking sector, which will likely increase to sustain the competitiveness (see Section 3.1). Smaller banks have more difficulty in investing in new IT infrastructures, since generally this requires significant initial costs (Oliver Wyman and Morgan Stanley, 2020b). For instance, the recently published report of CIPA (Convenzione Bancaria Per l'Automazione) shows that Italian banks' IT cash-out (current expenses plus investments) has constantly increased since 2014 (CIPA, 2020). Currently, 59.5 per cent of IT cash-out is allocated to the management of current activities ("run costs") while the 40.5 per cent is dedicated to innovation ("change costs"). The gap between run and change costs increases as the size of the banks decreases (Figure 10).⁴⁸

Overall, in the near future, cost reduction will likely remain one of the most important ways to regain efficiency for banks, which in turn is the main driver for an organic increase in profitability. The review of recent contributions suggests that this process will likely incentivize an increase in scale and a further streamlining of internal processes to exploit digital-related benefits.

Figure 10: IT cash-out of Italian banks by banks' dimension (per cent)



Source: CIPA, 2020. – Large banks are those with total assets greater than 100 bn of euro; medium banks have total assets greater than 20 bn and lower than 100 bn; other banks have total assets lower than 20 bn.

4.2 Consolidation

The optimal size of intermediaries is growing because digital innovation as well as the other mentioned recent developments (e.g. growing compliance costs) create greater opportunities for economies of scale, increasing the wedge between the performances of smaller and larger intermediaries. Indeed, scale is largely identified as one of the most important driver of worldwide banks' profitability (Oliver Wyman and Morgan Stanley, 2020b). The rise in competition and the

⁴⁷ In Italy, for instance, the aggregate decrease is concentrated in the first quartile of banks by total assets. Comparing the first 9 months of 2020 and 2019, the reduction in other administrative expenses was -17.9 per cent for significant institutions, while it was -5.8 per cent for less significant ones.

⁴⁸ In the report, the sample of banks are divided into three groups: largest, medium and other banks. The share of change costs decreases from 53.2 for largest banks to 38.9 for medium banks to 31.7 for other banks.

challenges discussed in this paper may particularly affect the business model of local and smaller banks. In addition, small and medium-sized intermediaries may suffer from lower cost efficiencies and disadvantages in financing large IT investments. Also in corporate and investment banking mid-tier intermediaries are losing market shares in favour of larger players, which are increasingly attracted by the high returns achievable in services for mid-sized firms (Oliver Wyman and Morgan Stanley, 2020b).

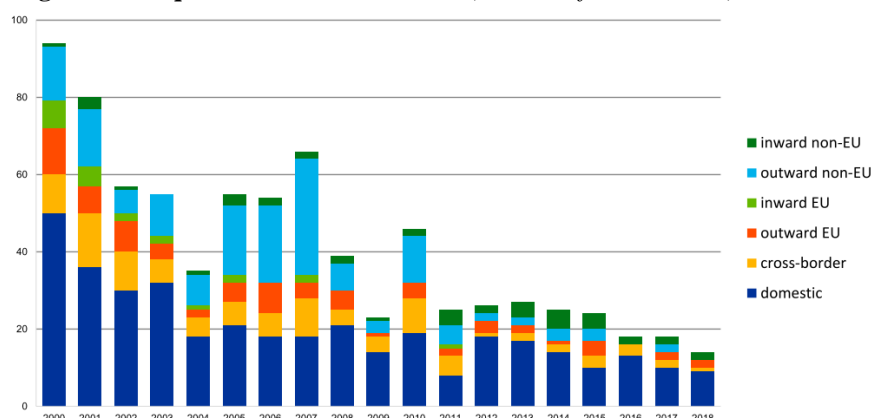
Focusing on the euro area, the banking sector also shows signs of overcapacity (De Guindos, 2020; ECB, 2020f; Gardó and Klaus, 2019), stemming from low operational efficiency – mainly driven by overlapping physical distribution networks – and high competition in a fragmented system as a result of cultural and legal differences across jurisdictions. In particular, an excessive capacity of the banking sector may lead to a fierce competition among intermediaries, an inefficient allocation of resources, and an increase in the system indebtedness (Enria, 2019).

Consolidation can help to reduce inefficiencies arising from small scale and overcapacity. An increase in size could allow small and medium-sized banks to exploit benefits from economies of scale, especially if consolidation is accompanied by the rationalization of the distribution network and a more extensive adoption of new technologies in the provision of services (Bonaccorsi di Patti and Ciochetta, 2020). Consolidation may also regard operations between banks and FinTech players to achieve mutual benefits (Deloitte, 2020): FinTechs would access a banking licence, while banks may incorporate new digital capabilities and target new segments.

However, also the intermediaries that will not participate to the consolidation process may adopt alternative solutions to gain efficiency, such as the creation of partnerships and joint ventures to share costs and investments with other intermediaries, as well as sharing the reliance on external suppliers of business supporting activities (e.g. IT services). These solutions may allow a certain degree of heterogeneity across European banks, preserving the specificities of the smaller banks that are able to maintain a competitive advantage in market niches.

Given the increasing pressure on margins in several business lines, also large banks may decide to increase their scale through domestic or cross-border mergers and acquisitions in order to exploit cost synergies, share digital capabilities, and diversify revenues. Large banks may be interested in this process also for improving funding conditions as the access to financial markets for issuing debt and increasing capital is easier for larger players. This motive could be particularly significant if bank equity valuations will continue to be a fraction of book value (Oliver Wyman and Morgan Stanley, 2020b). In addition, cross-border operations can help banks to diversify risks, reducing the exposure to country-level shocks (König, 2019). In the euro area mergers and acquisitions activity has been very subdued since the global financial crisis (Figure 11): the bank restructuring process was mainly limited to domestic consolidation, while no major cross-border consolidation took place. This can be partially due to the current low market valuations of banks and the fragmented retail markets, but also to regulatory and supervisory obstacles. Recently, ECB published a guide on consolidation (SSM, 2021) aimed at clarifying the principles underpinning the prudential supervisory approach in a consolidation process as well as at ensuring the sound management and coverage of risks. This will contribute to reduce the uncertainty about post-merger supervisory requirements, by increasing transparency and helping the stakeholders to understand the supervisory expectations. In addition, completing the banking union and harmonizing local regulatory regimes (i.e. tax systems and financial laws) may also foster the cross-border consolidation process (BCG, 2020; ECB, 2020f).

Figure 11: Bank mergers and acquisitions in the euro area (number of transactions)



Source: Enria (2019). – “Domestic” refers to transactions that take place within the national borders of euro area countries. “Cross-borders” regards euro area targets and non-domestic euro area acquirers. “Inward” refers to mergers and acquisitions by non-EU or non-euro area EU banks in the euro area. “Outward” indicates transactions carried out by euro area banks outside the euro area.

Therefore, in the medium term the banking sector may become more concentrated. The progressive concentration process may lead to increasing concerns about the creation of too-big-to-fail institutions, excessive market power held by few entities, as well as the amplification of governance inefficiencies and challenging integration between different entities (Enria, 2019). In particular, consolidation may increase the overall welfare if it leads to greater efficiency (i.e. if larger banks are able to produce the same output at a lower cost) or, conversely, it may reduce customer welfare if the growing market power obtained through greater concentration translates in higher prices for final customers. As a result, consolidation would positively affect the overall welfare mostly where the efficiency and the market power of banks are on average low, such as in systems with many inefficient intermediaries operating at a sub-optimal scale (Carletti et al., 2020). However, the actual market power resulting from a greater concentration in the banking industry will depend on the ability of incumbent banks to strengthen their competitive position with respect to the entry of new entities, such as BigTechs. Consequently, the market power might be limited also in highly concentrated market segments if the threat of new entries is significant.

In the medium term probably only few large players will have enough resources and capabilities to sustain the investments required for offering a wide range of products and serving numerous markets. Consequently, an acceleration in the consolidation process is likely in the near future, driven by the need of raising efficiency, the opportunity to scale up technological innovation, and generally benefitting from economies of scale.

4.3 Risk management

The massive and sudden increase in digital channels entails a significant increase in operational risks both for traditional banks and FinTech companies. Innovation will have to go hand in hand with improved operational risk management. Cyber risk, in particular, will require banks to make appropriate adjustments to their risk management functions, but also some other risks, such as money laundering or the potential misrepresentation in disclosures, must be taken into account. Risks should be clearly identified, analysed and assessed; appropriate controls must be implemented and lessons learned must be collected and shared.

Also FinTech firms are tasked with addressing the potential exposures created by their innovation (Carletti et al., 2020). FinTech entities that have interest in becoming banks, expanding their portfolio of bank-like products and services, will be expected by regulators to have a risk and compliance framework that appropriately addresses the risks generated by their business. Whether the FinTech

providers, with their more recent technologies, are more or less exposed to cyber risk than traditional banks is still unclear. On the one hand, technology is their comparative advantage: they use newer generations of IT, which may be more robust to attack, and are heavily investing in preventing disrupting events. On the other hand, pressure to quickly come to market may lead to more risk-taking.

Moreover, risks coming from new technology are not only of micro-prudential nature; some of these risks regard financial stability. Some financial stability risks may increase if the part of the non-traditional sector grows in size. Financial stability may also be affected if FinTech players and banks make greater use of similar technological innovations. The appropriate responses to these new systemic risks, however, are not obvious. The macroprudential toolkit currently used for systemic risk does not easily apply.

For instance, the advent of deep learning⁴⁹ and other advanced techniques represent a significant discontinuity from data analytic techniques previously used within the financial sector. The adoption of these new techniques may affect financial stability along several potential pathways (Gensler and Bailey, 2020). First, the need of data aggregation will lead to an increase in concentration of single-source providers; this may be a source of risk due to uniformity or monocultures, including that which arise from herding⁵⁰ and due to network interconnectedness.⁵¹ Second, the development of industry as well as the economies of scale in language processing may lead to uniformity and network interconnectedness in the sector. Third, regulatory gaps may emerge for challenges in explainability, fairness, and robustness associated with the use of these techniques. Finally, there is also the risk that advices provided by each virtual assistant and robo-advisors become standardized, causing herding of clients' decision making processes.

All in all, current risk management models will need to be updated to address the increased risks likely to arise with an extensive use of new technologies. The ability of addressing these new risks will be affected by the bank size as intermediaries will invest a significant amount of resources to develop more sophisticated skills and tools. As a result, economies of scale will emerge also in risk management.

4.4 Diversification of activities

The adaptation of banks' business models to the new environment might also incentivize a greater diversification of activities. Banks already provide several services related to deposit-taking and loan-granting core functions, diversifying their income sources and exploiting the benefits of economies of scope. Indeed, diversification fosters the emergence of operational synergies between different business lines; the sharing of staff, technologies and information across functions can facilitate the provision of a wide range of fee-intensive services. For instance, a growing number of banks insert insurance products into their offerings (McKinsey, 2019), selling non-lending products in combination with their traditional services, such as coupling home insurances with mortgages. The capacity of banks to diversify income sources is particularly crucial in a context of declining interest income due to low interest rates (see Section 2.1). As a result, an increase in the degree of income diversification may be beneficial for profitability (Demirgüç-Kunt and Huizinga, 2010; Mergaerts and Vander Vennet, 2016) and lending (Marinelli et al., 2020).

⁴⁹ Deep learning is a subfield of artificial intelligence, a computation tool used for prediction and classification tasks. The technology relies on neural networks and its models iterate repeatedly to optimize for the best approximation function between inputs and outputs.

⁵⁰ Herding is characterized by multiple individual actors making similar decisions, resulting in a monoculture.

⁵¹ Network interconnectedness may refer to the dependency on some concentrated infrastructure/service provider or to the intricate firm-to-firm relationships which propagates risk across a system.

Indeed, a key advantage of banks with respect to other competitors (e.g. FinTechs) depends on their capacity to provide an integrated set of services (bundling), which leads to significant economies of scope. FinTech firms generally compete with banks by offering the same services, often more efficiently, but focusing mostly on one set of products; modularity is, in fact, a key characteristic of their approach, which pushes towards the micro-segmentation of the reference markets. If FinTech companies want to integrate their activities to exploit the benefits of economies of scope, they will also have to group the services offered, gradually converging towards that of banks (Barba Navaretti et al., 2018). The bundling of activities would likely underlies the need for a bank charter, in order to be allowed to collect funds in the form of deposits. In this case, FinTechs would be subject to the tight requirements set out by banking legislation, which would in turn require more complex organizational structures and processes, vanishing a big share of their cost-advantage. Eliminating the possibility of regulatory arbitrage would result in a level playing field condition among market operators, which will compete only on technology and the organization of activities. In this case it is no longer certain that FinTech firms have a distinct competitive advantage over banks and, consequently, it is not clear to what extent specialized FinTechs would be able to erode their market positions.

However, reaching an optimal level of diversification may not be an easy task for banks. The benefits of diversification relating to cost synergies may be counterbalanced by greater organizational complexity and inefficiencies (Berger and Ofek, 1995; Ciocchetta, 2020; Laeven and Levine, 2007). In addition, a limit for exploiting the benefits of diversification is the scale: if a bank does not reach a significant number of customers in the provision of a specific service, it may not be able to achieve a level of earnings sufficient to cover the costs associated with the production of that service. Finally, the ability of banks to further increase non-interest income in the medium term may be impaired by the erosion of earnings due to the increasing competition in each market and the lower returns achievable in mature business segments, e.g. in capital market operations and trading (IMF, 2020).

In this context, banks should assess what functions make sense for them to develop internally and where they should instead partner or acquire other companies, especially in the areas heavily affected by technological innovation. As regards the Italian banking system, the investments in cooperation with FinTech firms and financial institutions amount to approximately 14 per cent of total Fintech investments in the Italian banking system (Bank of Italy, 2019b). The most frequent form of collaboration is partnership; over half of the investments were related to the realization of API. The pandemic has accelerated this process by raising the need of a clear refocus and rationalization of resource allocation. In a survey among worldwide bank executives, 50 per cent of respondents said their institutions' inclination to outsource technology-related projects has increased after the Covid-19 outbreak, while 38 per cent augmented their collaboration with other firms (Deloitte, 2020). In particular, recently banks have already begun outsourcing non-core activities, such as those relating to compliance, to cut costs and reduce internal complexity. However, the outsourcing of activities to external entities, which are often outside the banking supervision perimeter, may lead to the emergence of new reputational, operational, and legal risks that can erase outsourcing benefits if they are not properly managed (Perrazzelli, 2020a).

The cooperation between financial entities will likely rise in the medium term driven also by recent regulatory interventions that has adopted an "open" banking approach. The cooperating dynamics may lead to the creation of "platforms" that could represent a change of paradigm in the financial services market. If traditional intermediaries will be able to maintain the control of the "platform" (see Section 3.1), they may integrate their services with those produced by start-ups, enhancing the specificities and competitive advantages of each subjects in a coopetition model. In this new scenario, leveraging on their strengths (e.g. reputation and base of customers), traditional intermediaries may have the opportunity to transform into hubs and offer their customers a larger range of services at lower costs.

Overall, the tension between specialization and diversification processes may lead to a significant reorganization in the industry (Boot et al., 2020; Oliver Wyman and Morgan Stanley, 2020b): different mixes of production and distribution models will likely emerge in the medium term. Some banks may focus on the production of specific services with limited (or no) direct contact with customers in order to exploit benefits of economies of scale in the provision of those services. Other intermediaries may focus on the distribution sector by establishing a close relationship with their customers; they could provide a limited set of core services, completing their offering with other products developed by third parties.

4.5 Relationship banking

Relationship banking refers to a business model in which banks form close ties with their customers through long-term cooperation. A relationship bank reduces information asymmetries through intense acquisition of soft information, difficult to quantify, store and transmit in impersonal way. This information is proprietary in nature and is typically acquired throughout the long-term relationship with its clients. A close bank relationship is particularly important for the access to credit of opaque borrowers, typically SMEs for whom hard information (e.g. balance-sheet measures) is not easy to collect, as it is essential to build trust and reduce information asymmetries between banks and their clients.⁵²

Traditionally, the relationship-based business model was referred to small and medium-sized banks which relied on their territorial roots to build valuable long-lasting lending relations – based on the exploitation of soft information – with their customers, as opposed to more impersonal models of larger intermediaries. However, in an increasing digital-intensive banking industry, relationship banking may be seen under a different perspective, as a way of doing business of traditional banks (including larger ones) based on human interactions and tailor-made services, opposed to technology-based and software-mediated contacts typical of FinTech intermediaries. Moreover, it is not only referred to lending, but to a wide set of products and services, including wealth management and advisory services.

As such, the acquisition and retention of customers and the build-up of valuable relationships requires considerable investments in time and resources, which is at odds with the FinTech lending model. Indeed, FinTech lenders ground their success on an online-based model and on the switch from the collection of soft, human-mediated information to the processing of hard information⁵³ via AI techniques (Agarwal and Zhang, 2020; Claessens et al., 2018b; Fuster et al., 2019; Petralia et al., 2019). Such model brings along remarkable competitive advantages but it may replace long-term relationships with a “transaction-oriented” perspective, relying on algorithms (see Section 3.1).

Despite the increasing momentum of Fintech players, the traditional relationship banking may still preserve room for exploiting its potential in several business segments. With regard to lending, the reliance on a fully automated process may entail some drawbacks.

First, despite Fintech lending can be a substitute for traditional banking in segments as consumer credit (Buchak et al., 2017; Di Maggio and Yao, 2020; Tang, 2019; Vallee and Zeng, 2019), part of the literature highlights that hard information cannot completely replace soft information. Therefore, Fintech lending may keep aside opaque borrowers – e.g. SMEs or young and innovative firms – for which hard information is more difficult or impossible to generate (Berger et al., 2005; Boot et al.,

⁵² Relationships are potentially valuable to both banks and customers because they improve contracting flexibility (Boot and Thakor, 1994; Von Thadden, 1995), reduce agency problems (Rajan, 1992), enable reputation-building (Diamond, 1991), and ensure confidentiality (Bhattacharya and Chiesa, 1995; Campbell, 1979; Yosha, 1995).

⁵³ Boot et al. (2020) refer to “codification of soft information”.

2020; Dell’Ariccia et al., 2017; Petersen and Rajan, 1995).⁵⁴ Such counterparties would therefore keep relying on relationship lending offered by traditional banks.

Second, relationship lending may lead to significant benefits for borrowers during crisis periods. In crisis times relationship banks can insulate their borrowers against exogenous shocks as part of their multi-period relationships (Bolton et al., 2016). In addition, borrowers having established multiple relationships are more able to absorb potential liquidity shortages (Branzoli et al., 2020).

Moreover, traditional banks hold several advantages with respect to new forms of lenders, such as the peer-to-peer (P2P) FinTech intermediaries.⁵⁵ Money lent via P2P platforms is not classified as deposit, therefore it does not benefit from the deposit guarantee schemes protection. This may discourage investments from less experienced or risk-adverse agents (typically households), for whom the cost of monitoring and risk management would be excessive. They will likely keep entrusting their savings to traditional banks. Consequently, a large share of available liquidity will likely continue to be managed (and lent) by traditional banks. In this context, P2P lenders would not take over the market of lending; rather, they would complement bank’s lending offer by cornering parts of the market where a significant proportion of borrowers fall outside the banks’ risk appetite (Deloitte, 2016).

Relationship banking would also keep its importance in the provision of services. In wealth management, for instance, despite FinTech-based services are gaining momentum also in this segment (see Section 3.1), the so-called wealth-tech services are likely to act as a complement (and a booster) of the traditional and human-based wealth management services. Indeed, wealth-tech services reduce advisory costs, thus favouring the access to these services for the low-medium sized investors, for whom the costs of advisory were often prohibitive compared to the investing potential (Deloitte, 2020). However, larger customers, who need more specialized services, would keep to be served by human advisors. Moreover, AI models underlie several potential drawbacks. First, AI-based models better exploit their potential for large, liquid and more stable portfolios, whereas less-liquid, niche securities, as well as securities from innovative sectors and firms may be penalized by the scarcity of available information to feed the model. Second, AI models entail risks of financial monoculture and herding behaviours stemming from the underlying similarities of those models⁵⁶ that may amplify risk concentration of portfolios (Gensler and Bailey, 2020), hardly to be detected. In this context, human intermediation would still play a pivotal role.

Moreover, as already reported in Section 3.2, banks may tighten their relationships with customers by offering premium advisory services to investors willing to invest in green finance. Since the investors’ appetite for green-related assets is growing and this market segment is highly exposed to reputational risk, banks could be interested in developing professional expertise to support both investors and corporate borrowers.

In sum, the ability of banks to establish a long-term relationship with their customers will likely remain a key factor to determine their performances also in the near future as it allows intermediaries to adopt profitable cross-selling strategies and maintain a competitive advantage with respect to new entrants.

⁵⁴ Moreover, Ferri and Murro (2015) show that credit rationing increases for opaque firms that are matched with transaction-oriented banks compared to those that are matched with relationship-oriented banks.

⁵⁵ In peer-to-peer (P2P) or marketplace lending loans are originated through an internet platform which act exclusively as brokers between lenders and borrowers seeking funding. Some platforms may also use a different model, using their own balance sheet to retain some of the credit risks.

⁵⁶ Such effects are even more evident in the light of the diffusion of AI-as-a-service models, which tend to concentrate the provision of AI based services in the hands of few big players.

5. Conclusions

Numerous competing forces are reshaping the banking sector, pushing banks to change their business models. The structure of the industry that will prevail in the medium term is not easy to predict but, based on the review of recent contributions to the debate on the future of banks, we have identified and assessed some prevailing trends.

The key force that is reshaping the banking industry is the pervasive adoption of digital innovation. Digitization is having a disruptive impact along the value chain: it is affecting the kind of services that banks are providing (e.g. the creation of new digital banking products), how intermediaries produce them (i.e. automation and outsourcing), where services are distributed (e.g. mobile applications and online platforms), but also which entities are involved in this process (e.g. new digital-based entrants). In addition, digitization is also leading to an increase in the type of information that intermediaries are able to collect and examine. As a result, the ability to integrate new technologies in core functions will likely be the key indicator of banks' competitiveness in a digital-intensive environment.

Moreover, banks will have to accommodate the increasing demand for green finance. Indeed, green finance may provide significant profit opportunities. Current figures support this conclusion, as market segments related to sustainable assets are growing fast and banks – especially large players – are having an increasingly pivotal role in supporting such growth. Banks can exploit this potential by leveraging on both green corporates demanding funds, directly financing them, and on customers willing to invest in the segment, sustaining the reallocation of portfolios via sustainable investment strategies, and developing advisory services.

In parallel with the mentioned emerging trends, banks will continue to cope with the consequences of the pandemic shock and their interplay with the challenges that banks were already facing before the Covid-19 outbreak: low interest rates, tighter regulation, increasing competition from non-bank intermediaries and non-financial firms.

Overall, this review suggests that the ability of banks to exploit benefits relating to economies of scale and scope will be crucial in the new environment. First, the switch to a digital and sustainable footprint will likely require a greater size to activate significant economies of scale. Banks will have to invest in new IT infrastructures, rethink and adapt internal processes and risk management, develop new skills and address legacies (e.g. physical branches and excess workforce). As a result, the traditional business model characterized by vertical and horizontal integration (i.e. the maturity transformation activity coupled with the provision of a wide range of products) will be likely sustainable only for large players. In contrast, smaller players will presumably be able to compete only if they will specialize in a restricted set of services for which they can develop a competitive advantage, collaborating with other entities (e.g., FinTechs) to offer additional products to their customers.

Second, the capacity of banks to compete in the medium term will also depend on the exploitation of economies of scope. Incumbent banks should manage the transition to a more digital and “green” environment by taking into account that new competitors may rely on some advantages stemming from the lack of legacies, novelty effects and more advanced digital expertise. However, FinTech players typically provide unbundled services, focusing on one or few business segments and their revenue scheme is mostly based on fees and commissions, thus lacking the typical sources of banking profits, maturity transformation and risk internalization. In this context, new specialized entrants might barely challenge incumbents' market shares. Rather, it is more likely that in the medium term pure FinTechs will exploit market niches or will interact with incumbent banks according to the above mentioned “coopetition” model. In addition, the demand of customers for high(er) yield investment stimulated by the persisting LIRE, demographic factors (e.g. the ageing of population), and interest in “green” projects will likely have to be satisfied via the wealth and asset management services,

which can support fee income growth and contribute to the diversification of revenues. These developments will presumably increase the importance of providing different and integrated financial services for banks, which should also benefit from their advantage of being able to establish a long-lasting relationship with their customers.

Finally, a widely discussed theme in the literature is the extent to which banks are able to retain a prominent role in a scenario in which BigTechs operate actively in the credit market. In this case the hardest challenge for intermediaries would be maintaining a competitive advantage with respect to these entities, which will presumably rely on the abovementioned ability of banks in establishing stable relationships, skills in providing high-margin and complex services, their access to a stable and cheap source of funding as deposits, as well as on their experience in managing risks and in addressing regulation.⁵⁷

These trends point to avenues for future research. For example, further analyses may better explore the impact of the changing business models on the allocation of credit and on the relationship between lenders and borrowers, as well as how the heterogeneity in digital innovation and sustainable finance appetite across countries will affect the future evolution of the industry.

Finally, we highlight that the structure of the banking sector in the medium term will be significantly affected by the decisions of policymakers. As regards the digital challenge, policymakers may be called to undertake in the (near) future more thorough regulatory interventions, taking into account (i) the need to balance the trade-off between competition and risk, (ii) the creation of a level playing field and the filling of existing regulatory gaps favouring FinTechs, (iii) the role of BigTechs and the development of a suitable regulatory approach, given the size, the complexity and the cross-border footprint of such players. As regards green finance, a potential drawback concerns the lack of univocal criteria and methodologies for the evaluation of investments in this area and the lack of a shared terminology that amplify reputational risks for intermediaries stemming from greenwashing practices. In this respect, the recently issued EU Taxonomy Regulation and the objectives of the G20 Agenda for 2021 have the potential to smoothen such risks and pave the ground for the development of a consistent framework.

⁵⁷ For example, the role of BigTech companies in the provision of financial services is generally more limited in countries with more stringent prudential regulation (Claessens et al., 2018b).

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