



**Politecnico
di Torino**

Politecnico di Torino

Corso di Laurea Magistrale in Ingegneria Gestionale (Engineering and Management)

A.A. 2025/2026

March 2026

**Impact of COVID-19 in the European banking
sector: an analysis on how the pandemic
impacted the sector.**

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*To my beloved family and friends that have
always supported me regardless.*

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Abstract

This thesis presents a comprehensive analysis of the European banking sector, focusing on its major markets, i.e. the United Kingdom, Germany, France, Switzerland, the Benelux region, Italy, and Spain, treating the resilience of the sector amid the economic shift caused by the COVID-19 pandemic. The work begins by exploring the role of retail, investment, private and public banking, and the role of the European Central Bank (ECB) in the sector, e.g. monetary policy decision making, banking supervision, or its interactions with national banking systems.

The study then investigates the unprecedented impact of COVID-19 on European banking, addressing its economic effects across the European continent, including disruptions in international trade and supply chain, inflationary pressures, and financial market volatility. The response to these challenges posed by COVID-19 is assessed through a dual lens: first, examining the ECB's interventions, such as the emission of the Pandemic Emergency Purchase Programme (PEPP), adjustments in interest rates, and changes in capital requirements to ensure liquidity within the banking sector; and second, evaluating the response of the banking sector, explaining strategic shifts, either in the short and long term, adjustments in banking policies, and the high-paced migration to the digital.

An in-depth analysis of financial performance highlights how COVID-19 affected profitability across major European markets. By comparing profitability metrics from before the pandemic, this part of the work outlines revenues challenges, e.g. interest and investment income, as well as cost-management strategies adopted due to the rise of operational costs, especially regarding IT, cyber security and digital services. Additionally, this section will explore the phenomenon of "extra-profits", which had a very significant impact on the media, reported by certain banks, analyzing key factors that led these banks to them, and examining the influence of government interventions and public perceptions.

The thesis further delves into risk management within the European banking sector, overviewing at first instance the main risks that banks face and then emphasizing how banks adapted to rising credit uncertainty, operational shifts, market volatility, and liquidity pressures due to COVID-19. This section examines how banks modified credit risk policies due to elevated default risks in lending segments like retail, hospitality, and small and medium enterprises (SMEs). It also explores changes in operational risk management, including the shift to remote work and the need to higher investments in IT and cybersecurity. This chapter as well treats adjustments in market risk management due to the arising volatility in financial markets. Lastly, liquidity management strategies during COVID-19 will be elucidated, highlighting the ECB interventions and its effect on banks.

To conclude, this work offers a critical perspective and poses alternative approaches regarding the ECB decisions during COVID-19 as well as some banks strategies to take advantage of this situation to generate additional profits, similarly to what some banks and hedge funds did to profit from the 2008 Credit Crisis.

1. Overview of the current banking sector in Europe

Europe, like in many modern inventions, has been the forerunner and world epicenter for banking until, perhaps, the surge of the US economy from the second half of the 19th century. Nonetheless, Europe has been (and still is) a fundamental player in the sector at a global level and financial centers like London, Frankfurt, Paris, Amsterdam or Milan entail a massive importance in the performance of the European banking sector either at a local and global level.

The history of the banking sector in Europe dates to the Middle Ages, when Italian merchant banks, especially in cities like Florence and Venice, pioneered financial innovations such as bills of exchanges and double-entry bookkeeping. In the 14th century, the Medici Bank became one of the most influential institutions of its time.

By the 17th and 18th century, banks in Amsterdam and London played key roles in financing global trade given that The Netherlands and England constituted two of the most powerful empires in the world, with major trading monopolistic companies like the Dutch East India Company of the Dutch Empire or the East India Company of the British one. During this time, the Bank of England, founded in 1694, became a model for other central banks of the period, introducing key innovations like the issuance of standardized banknotes or government debt management.

The 19th and 20th centuries experienced the mass adoption of retail banking and the expansion of other banking segments like investment banking, in addition to the first regulatory policies.

Today, the European banking sector is highly integrated and diverse, with major institutions operating in various markets and under the regulatory realm of the ECB and other national authorities.

The banking sector in Europe comprehends a sizable number of different categories, each one offering different services depending on the type of customer or organization. Throughout this introductory first chapter, this study will focus on the most common types of banking present in the sector, i.e. retail banking, investment banking, private banking, and public banking, for all selected major markets, highlighting and comparing each other's current situation and position in Europe.

Retail banking primarily serves individual consumers with essential banking services, while investment banking focuses on facilitating large-scale financial transactions, such as mergers, acquisitions, initial public offerings (IPOs), and securities, often working with corporations and institutional clients.

Private banking, on the other hand, provides personalized financial management and wealth advisory services to high-net-worth individuals, tailoring solutions for asset growth and preservation.

Lastly, public banking consists of state-owned or government-backed financial institutions that prioritized economic development and public welfare rather than profit, often offering services to underserved communities, e.g. low-income population, rural areas, etc., and public sector entities.

1.1 Retail banking

When most people think of banks, they usually refer to retail banking, which is the simplest form of banking. The main factor that differentiates retail banking from other banking branches is its approach to serving individual consumers rather than businesses or family offices. Some of the most common services retail banks offer are current and savings accounts, cash deposits and withdrawals from ATMs, personal loans, debit/credit cards and certificates of deposits; this last one is a type of savings account that pays interest at a fixed rate for an agreed period.

In Europe, there is an aggregate of 9,000+ banks that are currently operating and offering most of them retail banking services.

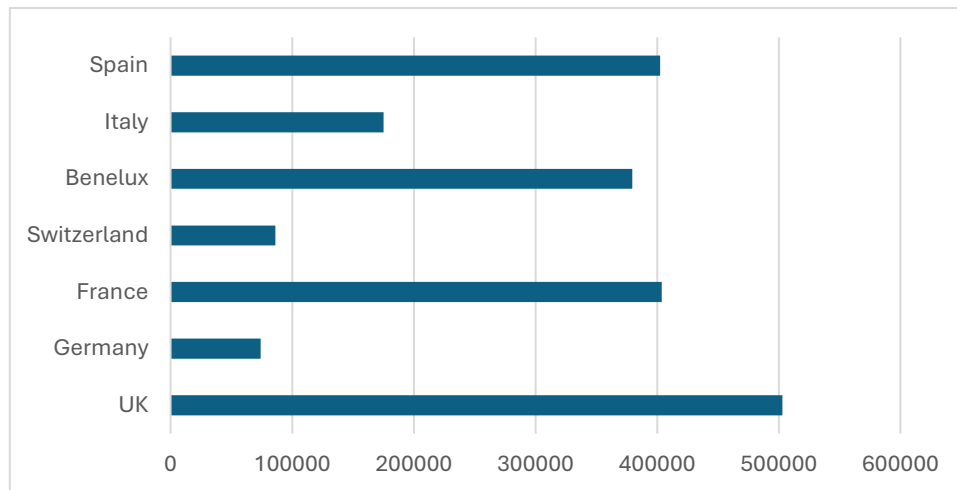


Figure 1: Ratio between population and active retail banks per major market.

This chart tries to relativize the supply of retail banks with a demand of customers calculated very simplistically through the population of each major market. The outcome clearly shows that Germany and Switzerland have the densest retail banking segment in Europe with approximately 74,000 and 86,000 inhabitants per retail banks, respectively, meaning that their relative supply of banks offering retail banking services is larger than the ones of their neighbor countries, having UK in the last place with more than 500,000 inhabitants per retail bank.

Following, the first classification of the main retail banking institutions hoarding the highest number of domestic customers has been built for each of the European regions previously established.

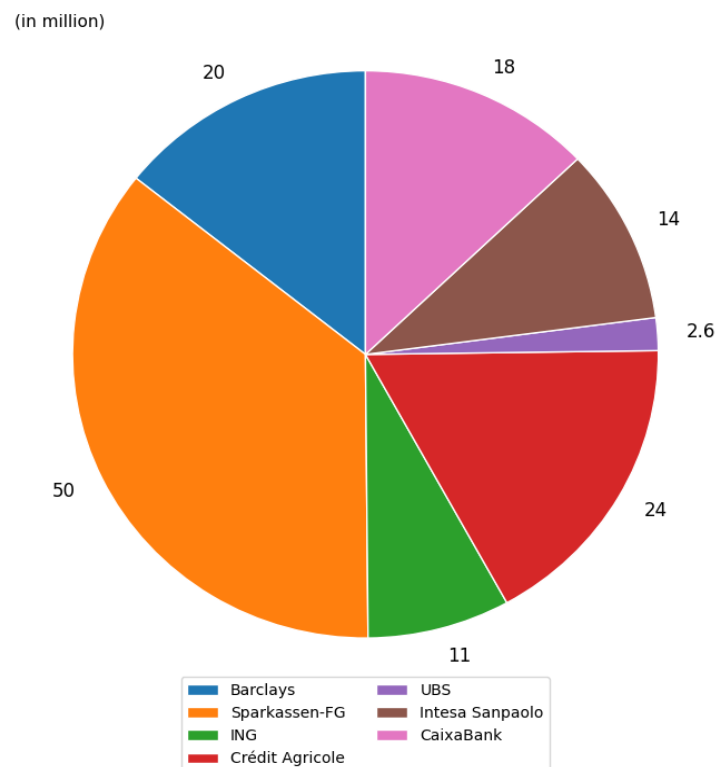


Figure 2*: largest retail banking institutions in Europe by domestic customers served.

*Sparkassen-FG is the biggest German retail banking institution. Nonetheless, it is worth noting that it is state-owned, comprehending a vast network of public banks with regional presence all over Germany.

In second place, a new classification has been made substituting five banks, i.e. Barclays, Sparkassen, Crédit Agricole, Intesa and Caixa, for their most relevant domestic competitors which are, respectively, HSCB, Deutsche Bank, BNP Paribas, UniCredit and Santander, despite all of these having fewer domestic consumers than the initial ones.

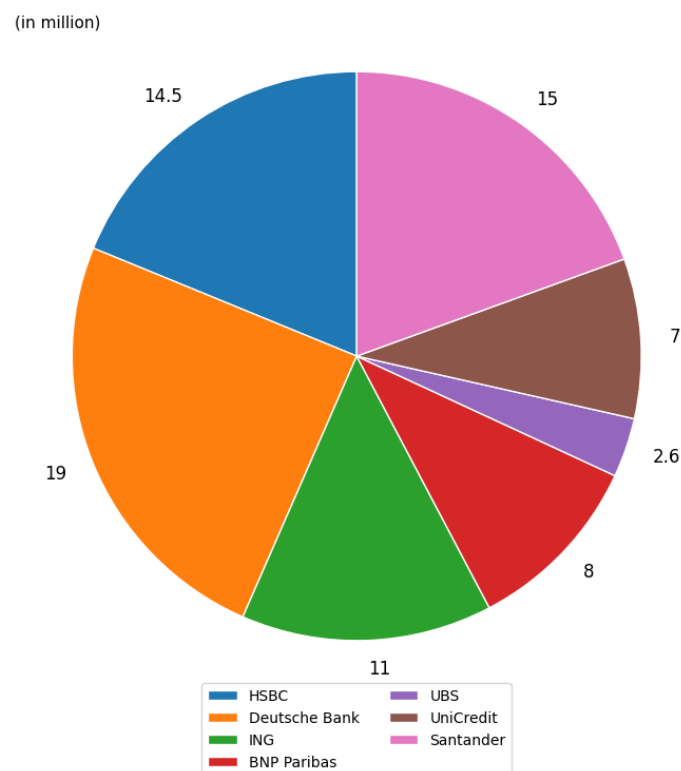


Figure 3: largest retail banking institutions in Europe by domestic customers served (sample modified)

It is evident that Germany and France have the biggest retail banks in Europe; in terms of population, they have the highest demand to satisfy being, consequently, the biggest institutions the German Sparkassen-Finanzgruppe, aggregating roughly 50 million of total customers served and the French Crédit Agricole with circa 24 million of domestic served customers and 54 million at global level, this attainment is explained by the strong presence of Credit Agricole around multiple European territory beyond France such as in Italy and Spain.

Despite this, among all the banks mentioned above, the one with the largest number of customers served at global level is Santander, with circa 173 million customers. This phenomenon is due to the strong presence of Santander in such a populated market as Latin America. Regardless the massive global presence of Santander, it has been outgrown domestically in customers served by its national competitor CaixaBank, having approximately 18 million active customers in Spain against Santander's 15 million customers.

In the Benelux region, the dominant retail bank is, by far, ING Group, hoarding 11 million customers in the region and a total of 40 million customers worldwide. This high number of customers served at global level is due similarly to Crédit Agricole's, i.e. a strong presence in very populated nations across Europe.

Other institutions like Barclays, UBS, HSBC, Deutsche Bank or BNP Paribas, which are clearly dominant in retail banking too, have different operative features in comparison to other institutions mentioned in this study, i.e. these institutions are more focused in investment banking and other practices as private banking or wealth management, than other fellow banks.

In Italy, the domestic leader is Intesa Sanpaolo with circa 14 million Italian customers and 22 million at global level. UniCredit is still behind Intesa in both domestic and global customers served, aggregating 7 million and 15 million respectively. This can be explained due to more intensive investment banking activity from UniCredit in comparison to Intesa. This would be deeply tackled in the following section of the chapter regarding investment banking.

It is relevant to analyse these two clusters of banks (the ones in Figure 1 and Figure 2) in normalized terms, i.e. through the introduction of metrics that can explain better, and more equitable, the true impact of these banks on customer mass and origin nation population. The chosen metrics for this analysis were the domestic market penetration, i.e. the share of domestic customer mass in terms of total population of each bank's origin country, and the domestic customer mass share, i.e. the share of domestic customers in terms of total customers served globally per banking institution. The results are the following:

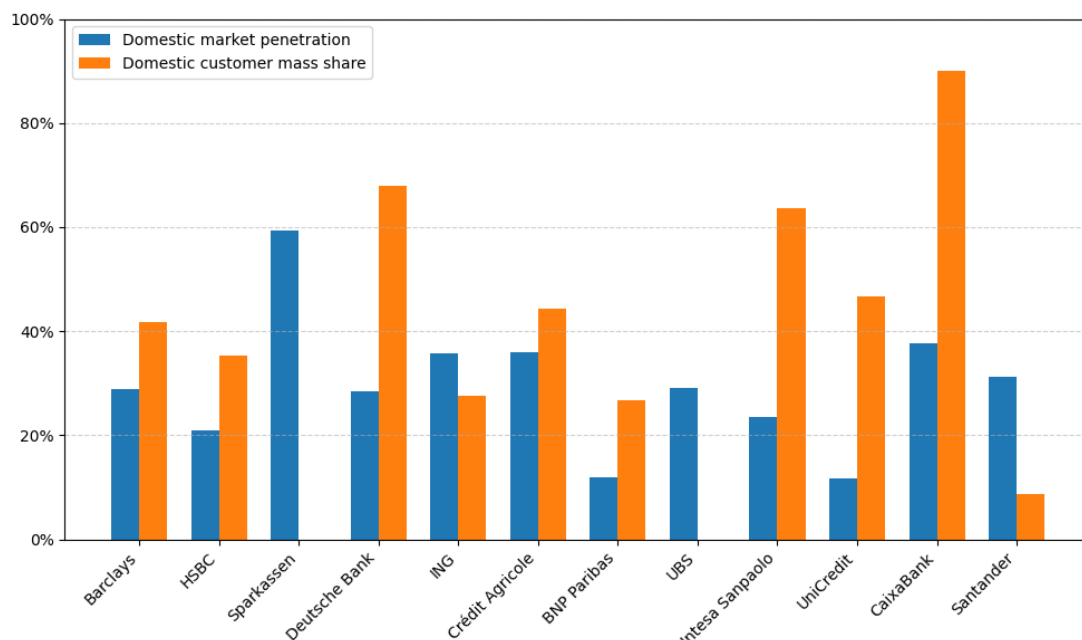


Figure 4: largest retail banking institutions in Europe by domestic market penetration and domestic customer mass share.

By shallowly looking at the figure above, we can note two missing columns regarding the domestic customer mass share for Sparkassen and UBS. The reason for this is, for Sparkassen, a clear intrinsic feature of the institution of serving just at German, so there is no need to calculate the domestic customer mass share since it is equal to 100%. It is worth noting that Sparkassen aggregates more than half of Germany's population, resulting in almost 6 out of 10 Germans using Sparkassen, on average. Regarding UBS the issue is slightly more complex since UBS has not explicitly reported in their latest annual report no information covering the topic of discussion.

Deepen on the graph, we can clearly see that Santander is the most global retail banking institution among our shortlist of bank, representing Spain, i.e. its origin national, approximately 8.7% of all Santander's served customers. At the same time, its national competitor, Caixa, is the most domestically-dependant retail banking institution in our cluster, with Portugal grabbing that delta

percentage for reaching the 100%, yielding a domestic market penetration of circa 38%. For the rest of banks, results are in line with what previously said; ING and Credit Agricole have a strong domestic presence with circa 36% for both institutions. In Italy, Intesa has clearly a higher domestic market penetration than UniCredit, yielding 63.6% and 46.7% respectively. On the other hand, UniCredit has a stronger higher base outside Italy (circa 53.3%) with important banks outside Italy owned by the group such as HypoVereinsbank.

Regarding the banking institutions that we previously baptized as more IB-focused banks present very similar domestic market penetration shares, that is UBS (29%), Barclays (28.6%), HSBC (21%) Deutsche Bank (28.5%) and with the exception BNP Paribas (12%) due its relatively lower customer mass in France, amounting to “just” 8 million French retail clients.

To extend the research, we will focus on a very important metric for this kind of banking: the customer deposits (without including other banks nor financial institutions), in this case, the ones reported from 2024 through 2019.

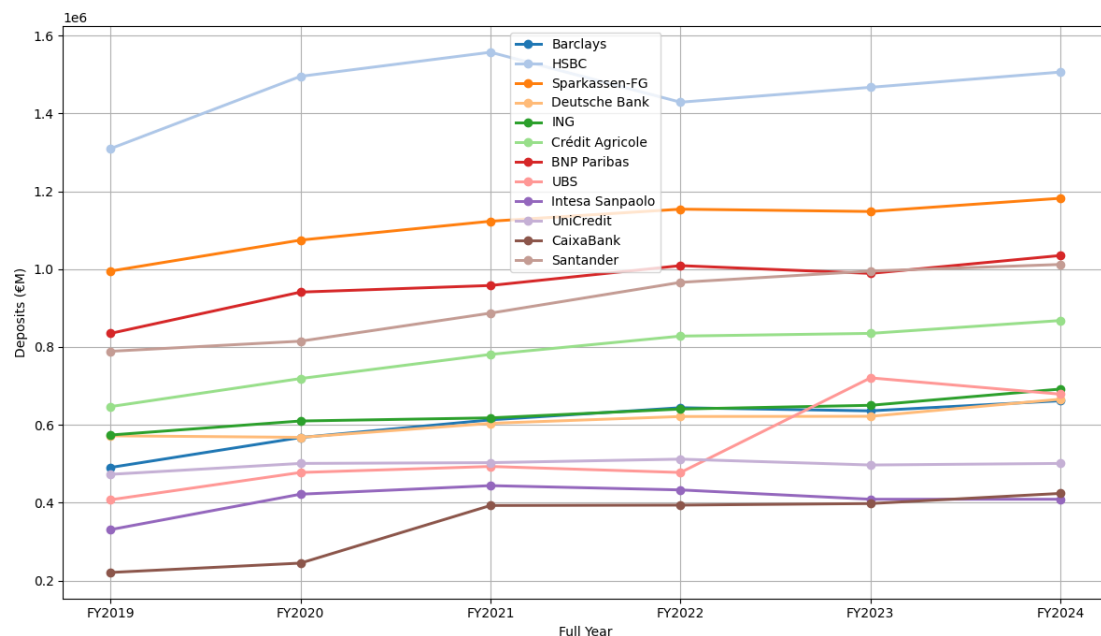


Figure 5: largest retail banking institutions in Europe by customer deposits.

At first sight, we can note that HSBC is the banking institution with the highest volume throughout the selected period, oscillating between 1.557 trillion euros, reached in FY2021, and 1.309 trillion euros, in FY2019. Despite having a strong decline of -8.2% in deposits between FY2022 and FY2021, HSBC managed to yield a positive CAGR of 2.84% across our period.

Furtherly, we can note that Sparkassen-FG has been the institution with the second highest volume of customer deposits in absolute terms since 2019 with 1.18 trillion euros in 2024, increasing 3.0% with respect to 2023, and with a CAGR of 3.5% for our selected period. This result is coherent since Sparkassen-FG is the institution serving the most national customers in Europe. The two institutions with the highest CAGR for our selected period were CaixaBank and UBS with 13.92% and 10.74% respectively.

UBS case is a particular one since it comprehends the acquisition of national fellow bank Credit Suisse, executed on March 19, 2023, after it filed for bankruptcy, with a suggested complete integration of this one to UBS Group by year-end 2026. This event has directly affected the inflow of customer deposits for UBS for the following reasons; on 2023, the increase, a stuttering 51%, was

mainly due to the immediate rise of UBS's customer deposit base from Credit Suisse's deposits, while the subsequent decline between FY2023 and FY2024, circa -5.8%, is very plausibly related to the operational and strategical complexity of the Credit Suisse integration into the group.

The rest of retail banking institutions presented a well-paced growth of their customer deposits comprehending CAGRs between ~3% and ~6%, except for UniCredit which yielded a CAGR of just 1.16% showing a clear flattened customer deposit growth throughout our whole selected period.

It is worth noting, as shown in the graph, that the growth in customers deposits for Intesa has experienced a good growth between the FY 2019 and FY 2021, yielding a nice CAGR of 10.3%, but from then until FY 2024 it has dragged a decrease in customer deposits resulting in a CAGR of -2.7% on that time portion, for a total CAGR between FY 2019 and FY 2024 equal to 4.32%.

A further metric that is equally valuable in assessing the relevance of these retail banking institutions is the quantity of credits outstanding to customers. This complementary analysis offers a new perspective of the asset side of their balance sheets, while the customer deposits' analysis depicted a liability-side review, as mentioned. By reclassifying these institutions according to the volume of customer credits, it becomes possible to assess their role in credit distribution within the market and to gain a clearer understanding of their lending operations.

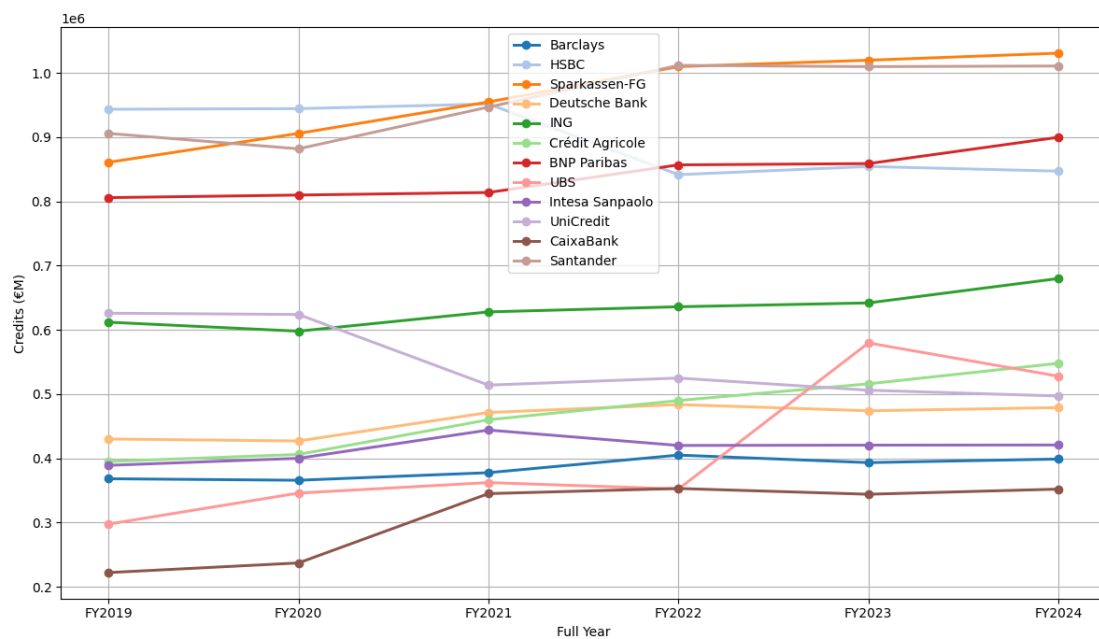


Figure 6: largest retail banking institutions in Europe by credits outstanding.

The credits' graph plotted above shows a different scenario in comparison to the deposits' one, i.e. Figure 5. The graph, for simplicity, includes all on-balance sheet credits, loans and advances granted to customers, excluding other banks/financial institutions and central banks since it was considered out of scope for this section, focused strictly on retail banking.

At first sight, we can see that HSBC has been the retail banking institution with the highest volume of outstanding credits for the first three years, with its highest in FY2022 amount circa 952 billion euros in customer deposits to suffer right after in FY2022 a decline of -11.6%, similar to HSBC's deposits, down to approximately 842 billion euros, yielding ultimately a CAGR in our period equal to -2.13%.

This reclassification elevates Santander at the level of Sparkassen throughout our selected period, logical outcome due to the already known great international presence of Santander in overseas

markets. The CAGR of these two institutions for the selected period was 3.67% for Sparkassen, and 2.22% for Santander. In a lower echelon than Santander and Sparkassen, it lies BNP Paribas with a CAGR for our whole period quite like Santander, 2.23% exactly.

The banks that shown the highest CAGRs were UBS (12.14%), CaixaBank (9.66%) and Crédit Agricole (6.77%). The reason for UBS to have this high CAGR is the same as for the deposits; after Credit Suisse's collapse, they have had an immediate initial absorption of Credit Suisse's main assets and liabilities as acquirers. For UBS, the pattern is quite similar to the deposits' one, characterized by an as well strong increase in credits, loans and advance between FY2022 and FY2023, due to the absorption from UBS of Credit Suisse's most direct assets after the acquisition, and right after a decline likely motivated by the start of the complex integration of Credit Suisse into UBS Group.

The rest of banks had discrete CAGRs throughout our selected period, oscillating between ~1.5% and ~3%, apart from both our Italian banks, i.e. UniCredit and Intesa, which have yielded CAGRs of -4.51% and 0.05% respectively, following a similar performance as in customer deposits.

Going further, we can still get more information from the financial statements of our selection of banks to better understand their retail banking operations and situation.

The ratio between outstanding credits (or loans) and customer deposits, known commonly as the loan (or credit)-to-deposit ratio, is a key metric to understand how banks fund its lending activity, largely through customer deposits, and manage liquidity risk.

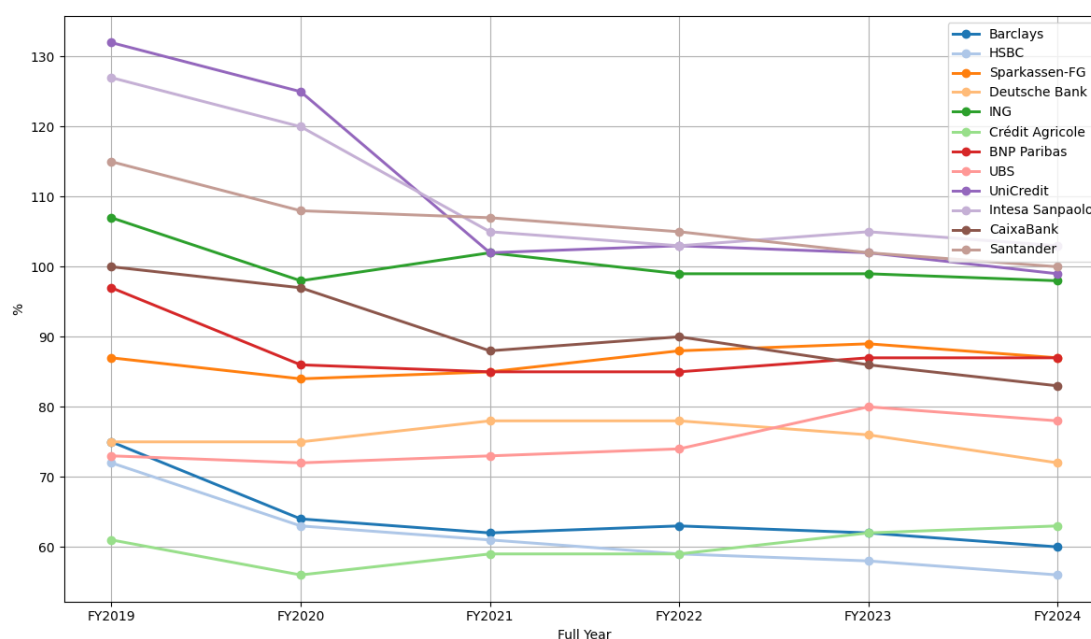


Figure 7: largest retail banking institutions in Europe by credit-to-deposit ratio.

Before commenting the results, a loan-to-deposit ratio higher than 100% suggests that the bank at issue might have in the near future liquidity problems to grant future credits, loans and/or advance to its clients, since the amount of outstanding credits offsets net the customers deposits, signalling a more-than-likely need capital market instruments and other financial derivatives to inject liquidity rapidly. From the results, we can see a generic downtrend among all our selected banks throughout the whole selected period. Among them, there are four banks that have kept its loan-to-credit ratio higher or close to 100% throughout our selected period: UniCredit, Intesa, Santander and ING, with a significant reduction for the Italians between FY2020 and FY2021 of exactly 7 percentage points for both institutions.

For the rest of banking institution, the ratio has oscillated between ~70% and ~100%, with three clear exceptions; Barclays, HSBC and Credit Agricole, with loan-to-deposit ratios oscillating from 75% to 60% for Barclays, from 63% to 56% for Credit Agricole, and from 56% to 72% for HSBC.

Continuing with our analysis, now we will try to relativise the amounts of deposits and credits among our bank selection to accomplish a more equitable comparison between them by examine the weight of each item of the pertaining side of the balance sheet.

For the liabilities, we will create a ratio putting together customer deposits and total liabilities, while for the asset side we will do the ratio for the outstanding credits (or loans) and the total assets for each of our banking institution.

First, we will elaborate the deposits/total liabilities ratio on our selected period for all our banks, as follows.

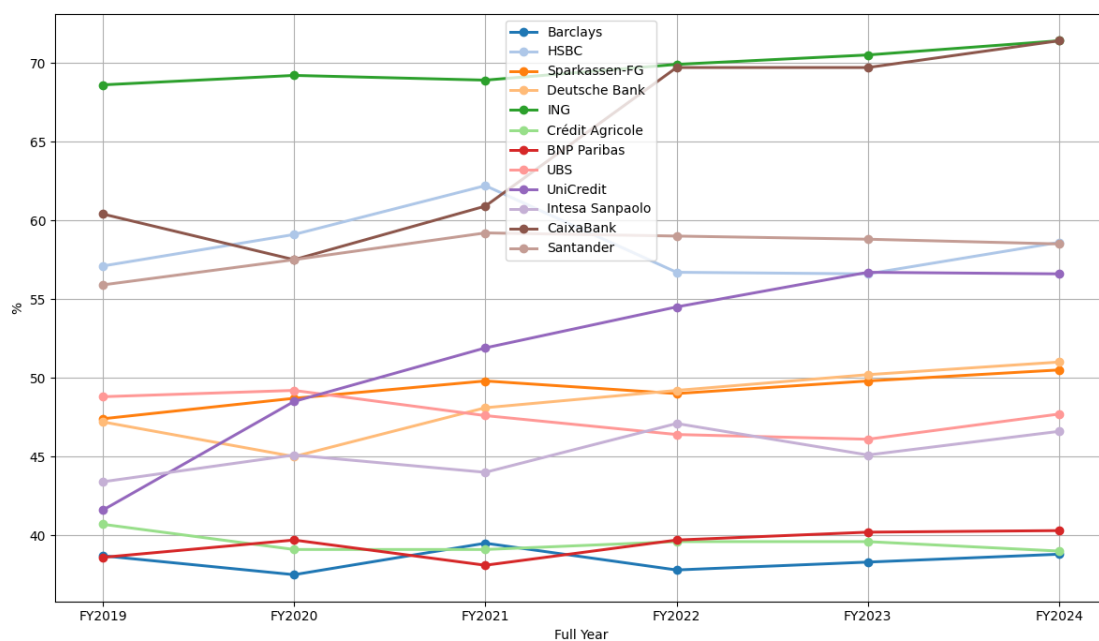


Figure 8: largest retail banking institutions in Europe by deposits/total liabilities ratio.

Here, we can see that the vast majority of the bank have kept more or less constant the volume of deposits with respect to the total liabilities reported on their balance sheets, apart from CaixaBank, UniCredit and Deutsche Bank that have increased their share of deposit with the liability side significantly over the selected period. More precisely, CaixaBank has jumped from the lower 60% area in FY 2019 to the lower 70% one in FY 2024, UniCredit from the lower 40% area to more than the 55% for the whole period and Deutsche Bank, more discreetly, from the 40% area in FY2020 to the 50% area in FY2024.

The banking institution showing the highest value for this ratio steadily over our selected period is ING, with around 70% of its total liabilities being purely customer deposits. This shows the intrinsic retail nature of the Dutch institution.

Regarding Sparkassen, which a priori is the bank with the most palpable retail-banking scope among the rest, has shown a share of customer deposits around 50% of total liabilities, which sparked the question of what other items in the liability side are present to be this significant on Sparkassen books. The answer for this question is liabilities to banks and securitised liabilities, in its majority the issuance of debt securities, i.e. bonds.

To conclude, as we nuanced, we will see the other side of the balance sheet, i.e. the asset side, by computing the credits/total assets ratio, as follows.

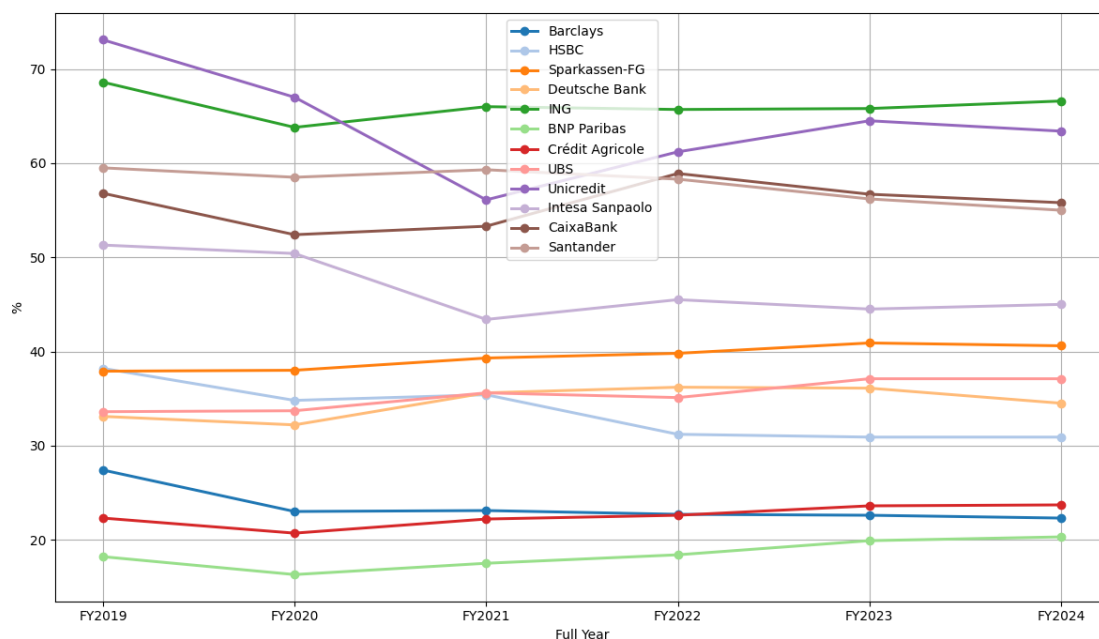


Figure 9: largest retail banking institutions in Europe by credits/total assets ratio.

From the graph above we can note that the generic trend goes from constant to slightly downside throughout our selected period. As in the deposits/total liabilities analysis, ING is the banking institution with the highest level of customer loans in terms of its total assets, oscillating in the high 60% area constantly over our period. The outbreak of UniCredit in the picture is noticeable for FY2019 and FY2020 in which it has shown a quite high allocation of credits in terms of total assets, exactly 73.1% and 67% respectively.

Regarding Sparkassen, as the other mainly retail-focused institution, the level of outstanding credits in terms of total assets throughout our selected period is quite constant lying at a lower level with respect deposits in a neighbourhood of 40%. Other asset side items that, on aggregate, have outweighed are loans to banks, and holdings in both fixed and non-fixed income securities.

We can also note in that Italian banks, Intesa and UniCredit, show the steepest downtrend in this ratio. Between FY2019 and FY2021, Intesa has declined more than 8 percentage points and UniCredit roughly 17 percentage points, indicating that Italy was the market where lending activity contracted the most during COVID-19 most intense phase, at least for the two biggest national lenders.

Apart from Sparkassen, we can observe that for our whole selected period there are five banks below the 40% for this specific ratio, and these are: UBS, Deutsche Bank, Barclays, BNP Paribas, HSBC and Crédit Agricole. For the first five, it is no surprise that their allocation of loans on their total assets is not that big in comparison to other institutions more focused on retail such as ING or Caixa. These five institutions, as we mentioned, are more IB-focused, and tend to have a set of items on their balance sheets that ultimately offset the loans to customers share on the asset side such as financial assets at fair value through profit or loss, derivative financial assets or loans to other banks. For Crédit Agricole, the main item up to par with loans to customers steadily over our selected period was, by far, loans to other banks and credit institutions.

1.2 Investment banking

Continuing with the reclassification of banks in Europe, investment banking represents a fundamental branch to examine in order to understand how financial institutions generate higher profits beyond retail banking practices. In broad terms, investment banking entails the organization and execution of large and complex financial transactions, such as M&As and IPOs. The main scope of investment banking is to raise money from multiple types of investors for a company or cluster of companies with a final strategic goal, such as an acquisition.

To contextualize the functionality of an investment banking institution, it is useful to consider the hierarchical structure through which activities are typically arranged, as illustrated in the following figure (adapted from Paul Pignataro's "The Technical Interview Guide to Investment Banking", page 18, John Wiley & Sons, Inc., Hoboken, New Jersey, 2017).

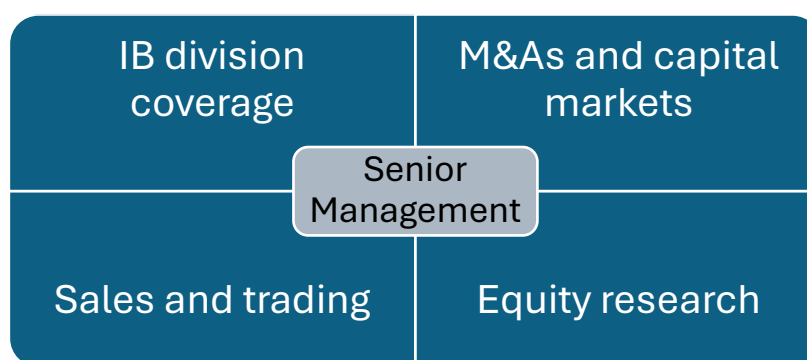


Figure 10: simplified overview of the typical structure of an investment banking institution.

At the center of any IB institution sits the senior management responsible for the strategic decision-making process of the bank. Right below senior management, investment banking division coverage lies, which is in direct contact with corporate clients. This level is typically subdivided into groups covering, hence the name, a cluster of companies within a specific sector with the end goal of offering these companies a specific product, such as a merger, an acquisition or a capital raise from the (through equity and/or debt) depending on their own demands and current situation. In other words, IB division coverage pursues the origination of mandates, a formal agreement through which the client company appoints our institution as advisor and executor of a specific transaction, that ultimately generates the revenues for our bank in form of fees. Coverage teams work synergically with M&As and capital markets teams to ensure top-quality product delivery to these corporate clients.

Within the investment banking division, M&A teams focus on advising clients on strategic transactions such as mergers, acquisitions, divestitures and corporate restructuring, by handling valuation analyses, deal structuring and negotiations, among others. Capital markets teams, by contrast, specialize in raising financing for clients through the issuance of equity securities in equity capital markets (ECMs) and/or debt securities in debt capital markets (DCMs). In accordance, they work closely with sales & trading to place the pertaining securities with other institutional investors, as we will explain below.

Outside the core investment banking division, but still in tight contact with coverage, M&As and capital markets teams, we found the sales and trading department. This unit is responsible for the placement and trading of securities, such as equities, bonds and derivatives, to get liquidity from diverse capital markets and to act as the executive arm on a specific transaction for a client, i.e. if a client company wants to raise capital from the market, salespersons and traders would act as the end

executors to get this capital from interested investors by facilitating the distribution of the appropriate securities to them. This process is called bookrunning.

Beyond these revenue-generating departments, we can find equity research focusing on providing reports in which they might analyze in depth a specific company or sector, offering stock price forecasts and enterprise valuations, among other analytics. This kind of department supports investment decisions for corporate clients and enhances the institution's overall market intelligence.

Investment banking institutions can be reclassified by showcasing an assortment of new parameters differing significantly from the ones used in the retail banking section.

The two main parameters that describe unequivocally the relevance of an institution in the investment banking branch are the volume of completed deals advised and the aggregated value of these deals. These parameters can be expressed through a more compact and equitable metric which is the average value (in Euros) per deal successfully advised per banking institution at a global level.

To calculate and analyse properly this metric, we gather information from the Mergermarket M&A Global Financial Advisors Annual League Tables for our selected period, that is FY2019 through FY2024. In addition, and for the sake of clarity, the analysis will be executed on three subcluster of banks with common characteristics: global full-service investment banks (group formed by the biggest IB institutions and most renowned global advisors within this list), including Barclays, HSBC, UBS, BNP Paribas, Deutsche Bank and Société Générale. Continental multi-segment banks, including Crédit Agricole, UniCredit, Intesa Sanpaolo, Santander and BBVA. And finally, boutiques and specialist advisors, including Rothschild & Co, Mediobanca and Van Lanschot Kempen, this last one as representative of the Benelux region.

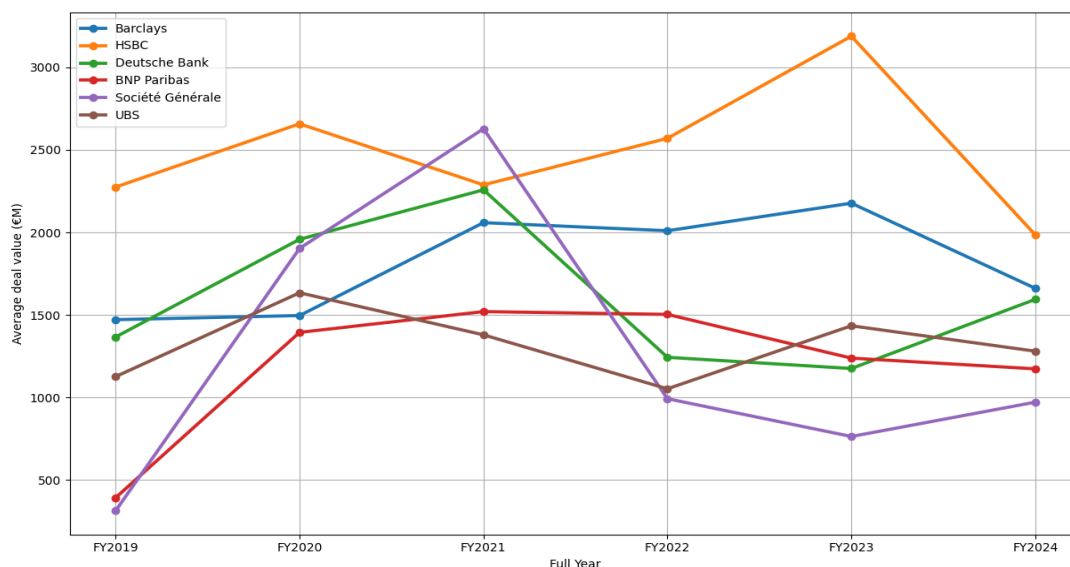


Figure 11: largest European investment banking institutions (subcluster 1) by average deal value.

At first sight, we clearly note that within our cluster, Barclays, HSBC, Deutsche Bank and UBS remain steadily above the 1 billion euros in average deal value across the entire period. This is not a coincidence: these four banks belong to the upper-echelon group commonly known in business as the “bulge bracket” investment banks, comprehending these institutions together with world-renowned American banks such as JP Morgan, Goldman Sachs or Morgan Stanley, among others.

At a slightly lower level, yet demonstrating strong execution success and broad global reach, we found two French institutions, BNP Paribas, as well relevant in our retail banking section, and Société Générale as a new appearance. Despite that spike that Société Générale had in 2021, having

successfully advised 44 deals for a total deal value of circa 116 billion euros, the average deal value for these two French IB institutions have been for the most years of our selected period below European bulge bracket IBs.

From the graph above, we can appreciate that between FY2019 and FY2020 there is an uptrend in completed M&A deals among this cluster of banks, followed by a rapid stabilization period and, for some institutions, even a gradual decline, most notably in the case of Société Générale. It is worth noting that Barclays holds the highest single-year total deal value within the cluster, reaching approximately 543 billion euros across 264 deals in FY2021. Another important takeaway from this first analysis concerns HSBC, which stands out as the European investment banking institution with the highest aggregate average deal value over the entire selected period, achieving a figure close to 2.5 billion euros on average per deal across the six-year window.

Continuing with our research, we now examine our second subcluster, which is composed by the IB institutions I have considered slightly less IB-oriented and with a lower global-advisory reach than the institution belonging to the first subcluster, as follows.

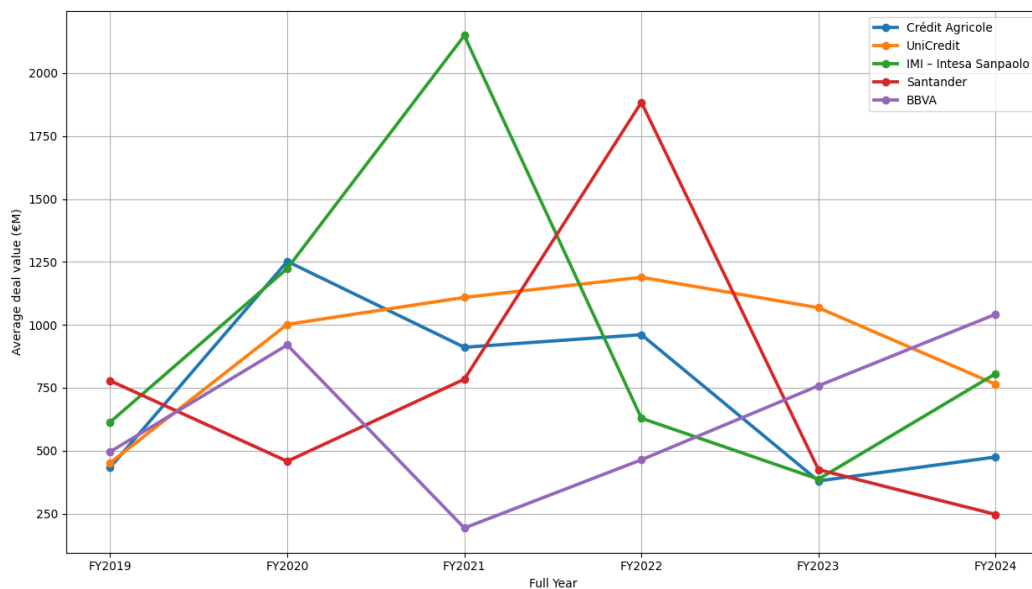


Figure 12: largest European investment banking institutions (subcluster 2) by average deal value.

From the graph above, we instantly note that the uptrend between FY2019 and FY2021 is not as clear as along the IB institution in Figure 12; Intesa had an outstanding increase in average deal value in that period, jumping from 614 million euros in FY2019 to circa 2.15 billion euros in FY2021 in average value per deal successfully advised, to then experience a palpable decrease in average deal value of circa 70% in FY2022 and a subsequent stabilization in the next couples of FYs. The huge average deal value of Intesa in FY2021 can be explained by the participation of the group in the financing syndicate for a mega deal worth circa 32 billion euros, involving the merger between environmental services company Veolia Environnement and utility company Suez. Despite Intesa's name, as none of the members of the financing syndicate for this deal, does not appear publicly as an involving part of this deal, a recent conflict-of-interest disclosure from the group clearly states that Intesa has granted significant financing to Veolia Environnement.

Santander presents a similar run as Intesa but shifted by a year, with a notable increase in average deal value from FY2019 to FY2022, generating a CAGR of 34.3%, reaching a high average deal value of circa 1.88 billion euros followed by two blatantly weaker years.

A mixed but ultimately remarkable performance is the one of BBVA, coming from the lowest average deal value in our subcluster, 193 million euros in FY2021, to the highest among all institution the cluster in FY2024 with 1.04 billion euros on average deal value.

To conclude with this first analysis on investment banking in Europe, we will analyse subcluster 3, composed by a specific type of investment banking institutions, with smaller balance sheets and incomes but still with a significant global coverage and footprint in the business.

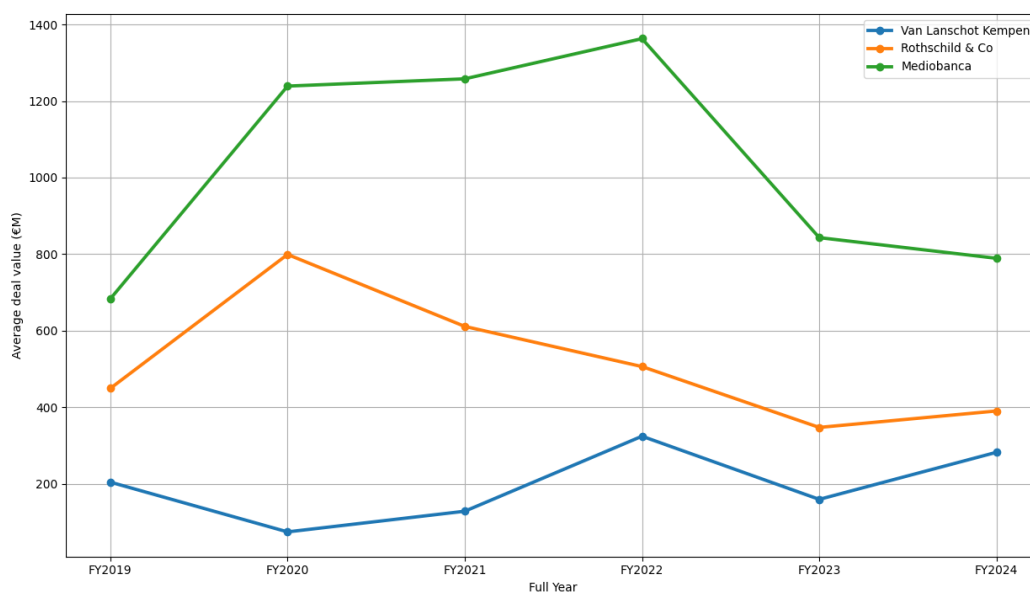


Figure 13: largest investment banking institutions in Europe (boutiques/specialist advisors) by average value per deal successfully advised.

Among all graphs in this first analysis, this one right above is for certain the easiest to read and interpret, essentially because this subcluster is composed of only three investment banking institutions.

At first sight, we see that Mediobanca is the undisputed champion throughout every single year of our period, reaching its highest average deal value in FY2022 with 1.36 billion euros and an aggregated average deal value for all our period equal to 1.03 billion euros per year.

Despite this, Rothschild has been the boutique with the highest single-year deal value among the three, taking part in FY2021 in 522 deals for a combined value of 319.1 billion euros. These numbers for Rothschild are not a fortuity; in the selected period, Rothschild has been the IB institution among all subcluster with the highest average annual deal count with approximately 375 deals per year, holding as well the highest aggregated deal count in absolute terms with a total of 2,248 deals for this six-year period.

Regarding Van Lanschot Kempen, we note that it is the smallest IB institution among all subclusters in terms of average (and total) deal value, hitting its maximum average deal value in FY2022 with 324 million euros and a total deal value across the whole period of circa 31 billion euros. The second banking institution with the smallest total deal value for the whole period is BBVA with almost double Van Lanschot's, topping approximately 60 billion, and an average deal value per FY of 646 million euros.

Moving forward with our reclassification of European banking institution by its investment banking positioning, we will analyse a fundamental metric to comprehend the impact of investment banking activities in our shortlisted banks, this is the weight of IB division revenues over the total revenues of the group. As in the previous analysis, the research will be subdivided into the same three subclusters for the sake of clarity and a better structured examination.

Firstly, we will start with our subcluster 1, which comprehends the biggest IB institutions in our research, and, logically, they are likely to output the highest values for this metrics.

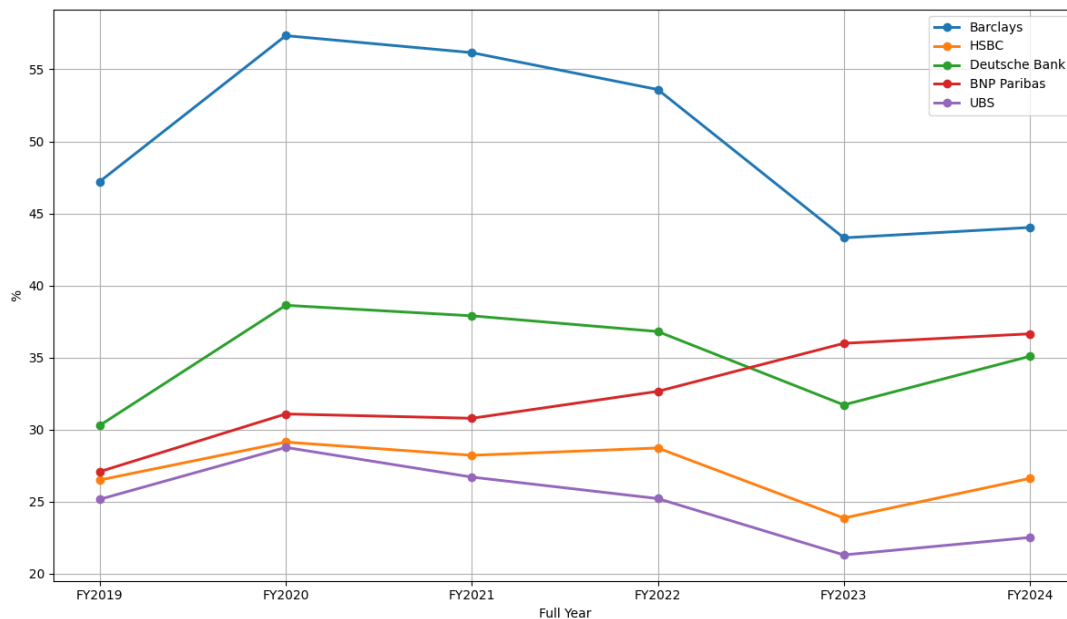


Figure 14: largest investment banking institutions in Europe (subcluster 1) by IB division revenue share as % of total revenues.

From the figure above, we can appreciate trend similarities between most of banking institutions within this subcluster despite them being in different European markets, this fact shows strategic similarities among corporations as well as market trend that have influenced in the revenue-generating nature of this type of banking.

Diving into each group, the first thing we can recognize is the unexpectedly lower IB division revenue share for UBS throughout the selected period. Despite this initial perception, this outcome can be easily explained as UBS has a very high share of its total group revenues in its Global Wealth Management division, aggregating in FY2024 and FY2023 the 58.6% and 61.4% of the group's total revenues, respectively.

For the rest of institutions, the trend of Barclays, Deutsche Bank and HSBC is quite similar, as shown in the results above. Barclays is the stand-alone banking institution with the highest IB revenue share from its total revenues, proving that it is the European banking institution with the biggest focus in investment banking practices. On second level, we have Deutsche Bank which has had, as previously mentioned, a very similar evolution to Barclays. However, in the past two years, Deutsche Bank has been surpassed sharply by French competitor BNP Paribas, being the only bank in this subcluster 1 to present a steady uptrend throughout the whole selected period. In the next figure, for subcluster 2, we will see that the other IB institution selected for this section, i.e. Credit Agricole, has also presented a continuous uptrend as we will see in the next figure.

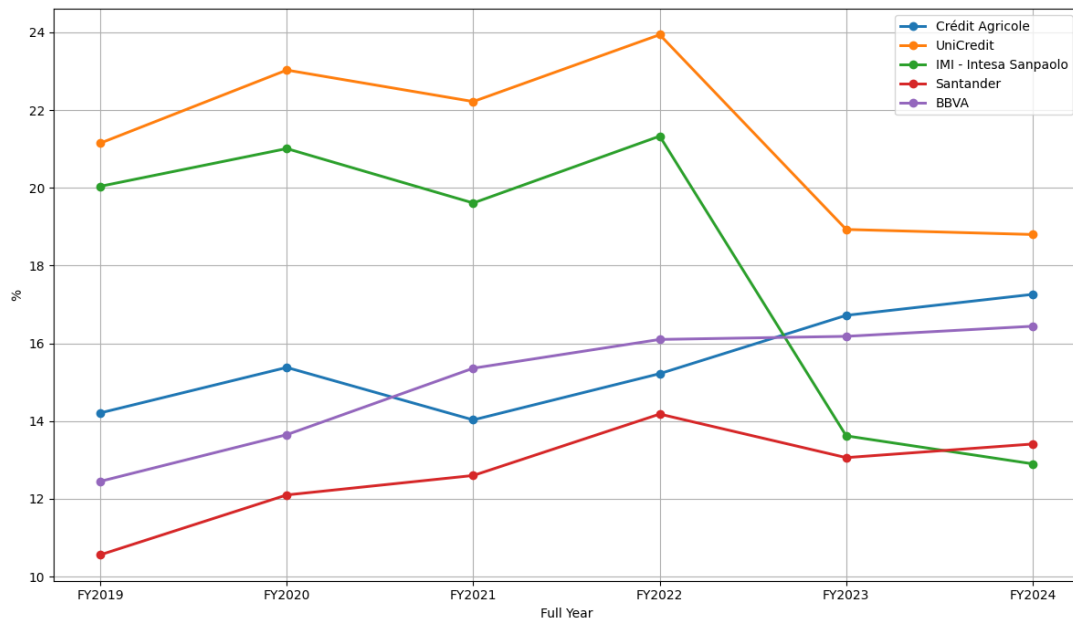


Figure 15: largest investment banking institutions in Europe (subcluster 2) by IB division revenue share as % of total revenues.

For this subcluster 2, we clearly see two noticeable trends; both Italian institutions within this subcluster have decrease significantly its IB revenue shares after FY2022, following quite a similar downtrend in the next two years. This effect can be explained by outstanding performances of Intesa and UniCredit in other banking divisions, especially retail banking, with big spikes in net interest income for both banks, with a CAGR of 17.54% for Intesa, and a 9.65% for UniCredit.

For the Spanish institution, the story is quite different; both Santander and BBVA have increased their IB revenue shares across our period, with a little decline for Santander in FY2023 and FY2024. This common effect for both these selected IB institutions can be explained by the fact that these two banking groups have a strong presence in overseas markets such as Latam, as we mentioned. In the case of Santander, it has also a relatively significant presence in global markets England.

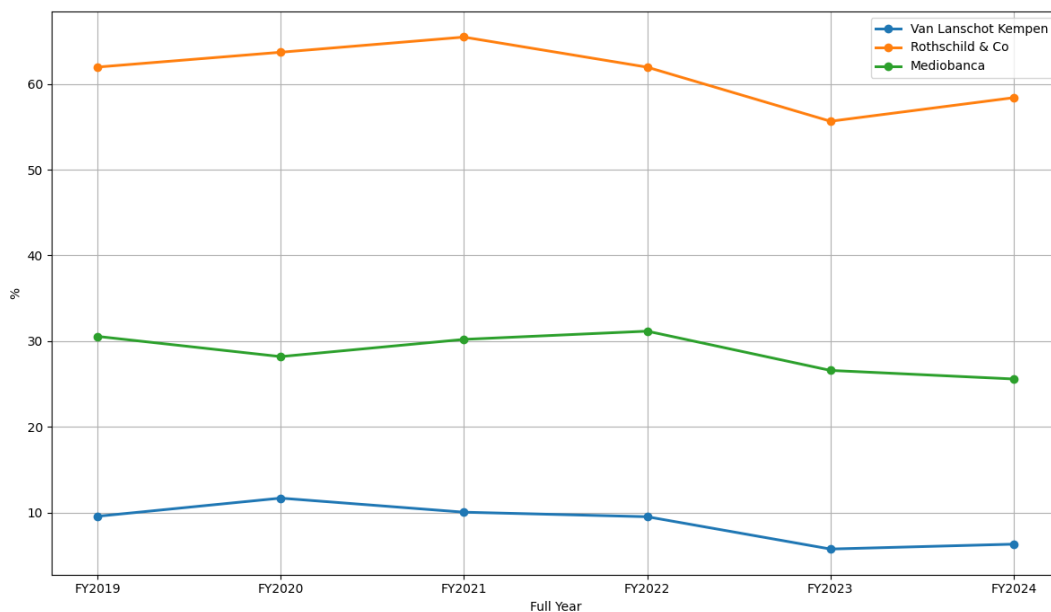


Figure 16: largest investment banking institutions in Europe (boutiques/specialist advisors) by IB division revenue share as % of total revenues.

Regarding this last subcluster, composed by the pre-selected top European IB boutique above, we can notice at first sight the huge IB revenue share on total revenues from Rothschild & Co, ranging between circa 58% and 66% of the group's total revenues, reassuring that this IB institution has its most revenue-generating operations in investment banking practices, such as M&A financing and advisory. Mediobanca shows a significant share of its total revenues as well lying on their IB division, very logical since they are most active bank in the IB institution in Italy, fluctuation between 25.6% and 31.2%.

For Van Lanschot Kempen, despite being quite active in M&A financing and advisory over different industries and markets around the world, the contribution of IB activities to the total group's revenue has been discreet, moving the IB revenue share between 11.7% and 5.8%. This outcome might be explained similarly to what happened to UBS; they have other branches, predominantly in the private banking and wealth management perimeter, yield higher revenues and, consequently, hoarding a higher share of total revenues.

To conclude with this investment banking section, after doing all research, IB revenues share clearly tend to be higher for those investment banking institutions with higher deal values and deal counts, being clear examples Barclays, with a total deal value for our selected period of 1.97 trillion euros in deals advised, ranging its IB revenue share between 56.2% and 43.3%, Deutsche Bank, with 980 billion euros and ranging between 30.3% and 37.9%, BNP Paribas, with 938 billion and ranging between 27.1% and 36.7% and, especially, Rothschild & Co, with 1.16 trillion euros and ranging between 65.5% and 58.4%. This said, there is a flagrant exception in this coherent trend, which is UBS; the group has had the second highest total deal value, 1.4 trillion euros, and it has shown a lower IB revenue share among the banks mentioned above, oscillating this share just between 21.3% and 28.8% across our selected period. This is explained, as previously nuanced, by the dominant revenue-generating Global Wealth Management division of the group, as we will explore thoroughly in the next section of this chapter dedicated to private banking.

1.3 Private banking

This type of banking comprehends the set of banking and investment services delivered through a high-touch, relationship-driven model to high-net-worth (HNW) and ultra-high-net-worth (UHNW) individuals, families, and in many cases entrepreneurs whose personal and corporate finances are intertwined. Its core objective is not only to "invest money", but to manage a client's entire financial balance sheet over time: preserving and growing wealth, structuring assets efficiently, protecting against downside risks, and supporting intergenerational transfers.

In practice, private banking typically combines (i) tailored investment advisory and portfolio construction, (ii) brokerage and access to capital markets products, (iii) credit solutions backed by financial assets (e.g., real-estate financing, entrepreneurial lending), (iv) planning services such as tax, estate, and succession planning, and (v) lifestyle and philanthropic advisory where relevant. The cornerstone of this type of banking is customization and continuity: a relationship manager coordinates specialists (investment advisors, product experts, credit, trust/estate, corporate finance) around the client's needs rather than selling a single standardized product.

On the other hand, but strongly related, we find wealth management, which is conceptually broader in scope. While private banking is usually reserved for higher wealth thresholds and emphasizes bespoke services, wealth management can cover a wider spectrum of affluent clients (from mass-affluent to UHNW) and is often delivered via a mix of advisory teams and scalable platforms. Many European banking groups report private banking and wealth management within the same divisional perimeter, reflecting the fact that both activities share the same economic engine: recurring fee income linked to client assets, complemented by net interest income from client lending and deposits. For the purposes of this thesis, private banking and wealth management will therefore be treated

jointly as a single perimeter (PBWM) so that institutions with different reporting conventions remain comparable and the analysis captures the full client-wealth franchise of each shortlisted bank.

It is important to distinguish PBWM from asset management. Asset management is the professional management of pooled investment vehicles (mutual funds, ETFs, mandates, pension funds, alternatives) on behalf of multiple investors, typically governed by product mandates and measured by fund performance, investment flows, and fee margins. The “client” in asset management is often an institution or a distribution channel, and the relationship is product-centered, e.g. an ETF. By contrast, PBWM practices are client-centered: the bank advises or manages a specific client’s portfolio and broader financial needs, and it may distribute third-party products as well as in-house funds. Although many banking groups own asset managers and can generate synergies (distribution of proprietary funds, research, product shelf, scale), the two activities differ in business model, revenue composition, and risk profile; treating them separately avoids mixing two concepts that are of course within the perimeter of finance, but that differ in revenue composition and risk profile.

Comparing PBWM across the selected institutions, which for simplicity are the same ones from the investment banking section, this study relies on two ratio-based indicators that are consistently interpretable across different bank sizes and reporting formats:

First, each institution mass of PBWM Assets under Management (AuM) as a share of total on-balance-sheet assets (PBWM AuM / Total on-BS Assets) to measure the relative weight of the wealth franchise within the group’s overall footprint. PBWM AuM (also reported by some banks as invested assets or client assets) refers to the market value of financial assets that PB/WM clients hold under discretionary management and/or advisory custody within the division. Total on-BS assets correspond to the bank’s reported total assets on its consolidated balance sheet. Expressing the AuM relative to PBWM r on-BS assets provides a normalized indicator of how “wealth-heavy” a bank is compared with its balance-sheet scale.

Second, the PBWM revenue share over the total revenues of each banking institution will be presented with the purpose of capturing the contribution of PBWM activities to group income generation by expressing PBWM revenues as a percentage of total group revenues, as we did with each selected group previously on the investment banking subchapter. PBWM revenues typically include recurring fee income (advisory and management fees), transactional income (commissions and brokerage), and, if the group’s PBWM activity includes lending and deposits, net interest income attributable to the division, depending on the bank’s internal segment reporting.

Further, to make the PBWM comparison interpretable across institutions with very different business models and reporting perimeters, the aggregate banks will be grouped into three clusters that reflect the structural role of PBWM within each group. The first cluster, composed by UBS, VLK, Rothschild and Mediobanca, brings together wealth-led and specialist franchises, where PB/WM is one of the most dominant activities and therefore implies a pivotal driver for both scale (client assets) and income generation. The second cluster, composed of Deutsche Bank, HSBC, Intesa Sanpaolo and HSBC, includes universal or investment-banking-oriented groups with a sizeable, clearly identifiable PBWM leg, large enough to matter economically, but still one engine among several. The third cluster captures diversified universal banks where PBWM exists as a complementary business line and typically represents a smaller share of overall activity. This clustering reduces the risk of misleading comparisons, since ratios such as AuM relative to balance-sheet size and PBWM revenue share are strongly shaped by the underlying business mix and the extent to which the wealth franchise is integrated with lending, retail banking, and capital markets activities.

For this analysis, the reconstruction of the metrics was not possible throughout our whole selected period for two institutions, which were UniCredit and BBVA. While retrieving all data to compute the metric described above, these two institutions have quite a shallow approach when presenting

private banking and wealth management results, putting jointly these results with the ones of their asset management divisions, making it very complex to compute the metric presented in a rigorous way. For this reason, these two institutions have been discarded from this analysis.

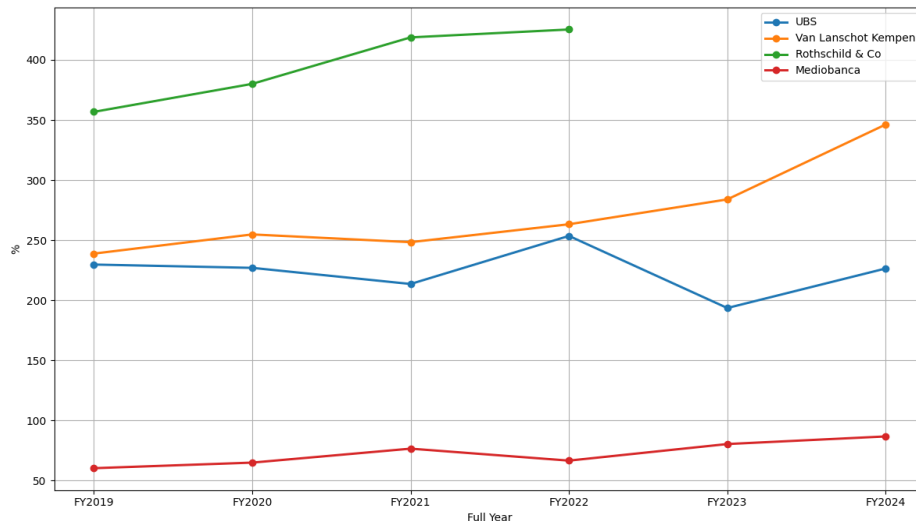


Figure 17: private banking institutions (cluster 1) by PBWM division share of branch's AuM as % of total on-BS assets.

For this first cluster, the PBWM AuM-to-balance-sheet ratio is structurally very high, which is exactly what you would expect for banks whose core activity is managing off-balance-sheet client wealth rather than growing a large lending book. In your data, UBS sits consistently above the threshold of 200%, highlighting the decrease below the 200% level due to the integration of Credit Suisse to the Group and then the sudden spike above that same level the year after. Van Lanschot Kempen shows the clearest upward trajectory, rising from c. 240% in FY2019 to above 346 % in FY2024, showcasing an notable shift towards a “wealth-pure” banking profile. Rothschild & Co is the most extreme case among those reported, moving from circa 356% in FY2019 to a few basis points above 425% in FY2022, reinforcing its positioning as an advisory/wealth-oriented group with a relatively light balance sheet. Unfortunately, at the time of this research was done, Rothschild & Co has not made available yet their 2024 nor 2023 ARs, which contain the precise revenue share of each business segment of the group, so for those years the rigorous calculation for the metric was not possible to compute in this particular case.

Finally, Mediobanca is materially lower than the three above but still rises from the lower 60% area to almost 87% over our whole selected period from FY2019 to FY2024, showing that Mediobanca's PBWM model is clearly important but coexists with other an as well strong retail banking branch that hoards more on balance-sheet assets than others pure-play wealth names.

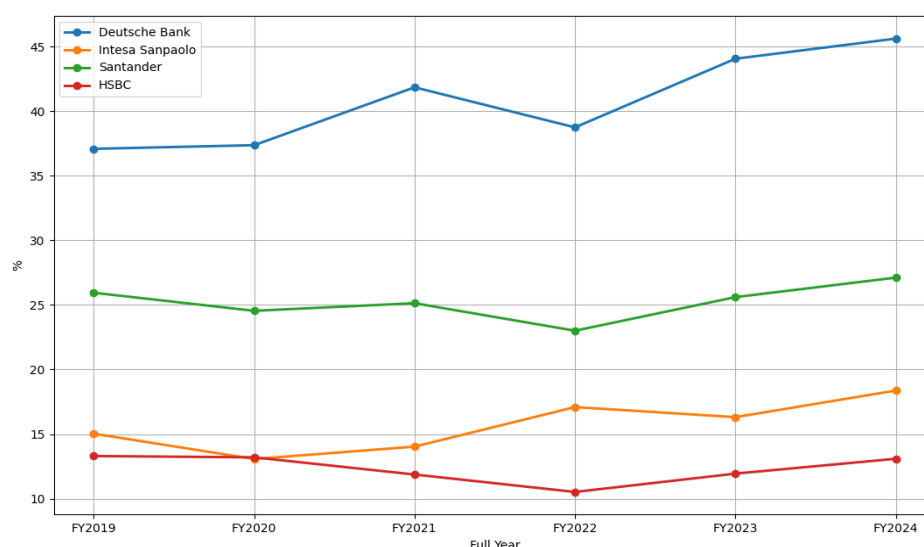


Figure 18: private banking institutions (cluster 2) by PBWM division AuM as % of total on-BS assets.

The second cluster shows the banking institution of our selection with a mid-range PBWM intensity, where PBWM AuM is still meaningful relative to balance-sheet asset size, but clearly below the “wealth-pure” profiles of Cluster 1. With ratios broadly spanning between, approximately, 10% and 46%, Deutsche Bank stands out as the most PBWM-heavy in this group, moving from the high-30s to the mid-40s by FY2024. Santander sits in a stable middle position around a tight bracket of 25-26%, while Intesa trends upward over the period, from the mid-teens to the high-teens, suggesting a gradually increasing relative weight of private banking within the group. HSBC remains the lowest in the cluster and broadly stable, consistent with a more diversified balance-sheet structure where PBWM activity is important but not the main driver of group scale.

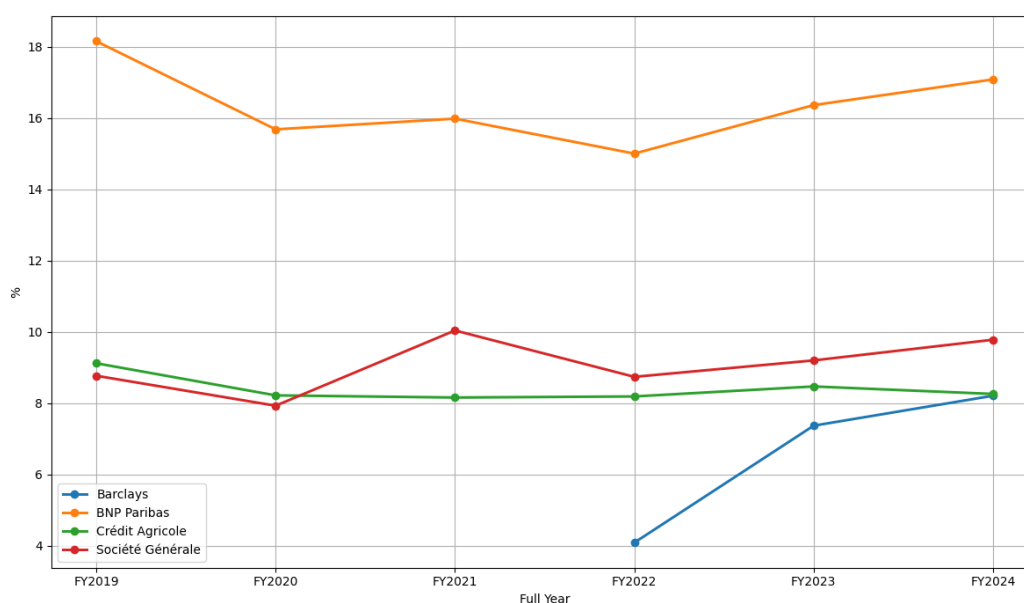


Figure 19: private banking institutions (cluster 3) by PBWM division AuM as % of total on-BS assets.

To conclude with the analysis of this metric, the third cluster of peers is clearly characterized by lower PBWM intensity overall, reflecting groups where PB/WM is a complementary activity alongside larger retail/corporate businesses. BNP Paribas is consistently the highest within this cluster, with a percentage of the PBWM AuM between 14% and 18%, approximately, while Crédit Agricole and Société Générale sit closer together around 8%-10% with relatively limited variation across years. At the lowest level for this metric, we find Barclays, predominantly an investment banking institution; Barclays has made official the figures for their PBWM division since FY2022, showing a quite small impact of PBWM AuM vis-à-vis their total on-BS assets. For Barclays, before FY2022, the private banking and wealth management divisions were both integrated inside both Barclays UK and Barclays International, without a clear split of data pertaining to PBWM activities.

Now, we will focus on the other metric we defined previously regarding among our cluster and assess if there is a correlation between the first metric, i.e. PBWM AuM-Total on-BS Assets ratio, and this second one, which show how the revenue-generating capacity of PBWM activities for each of our banking groups.

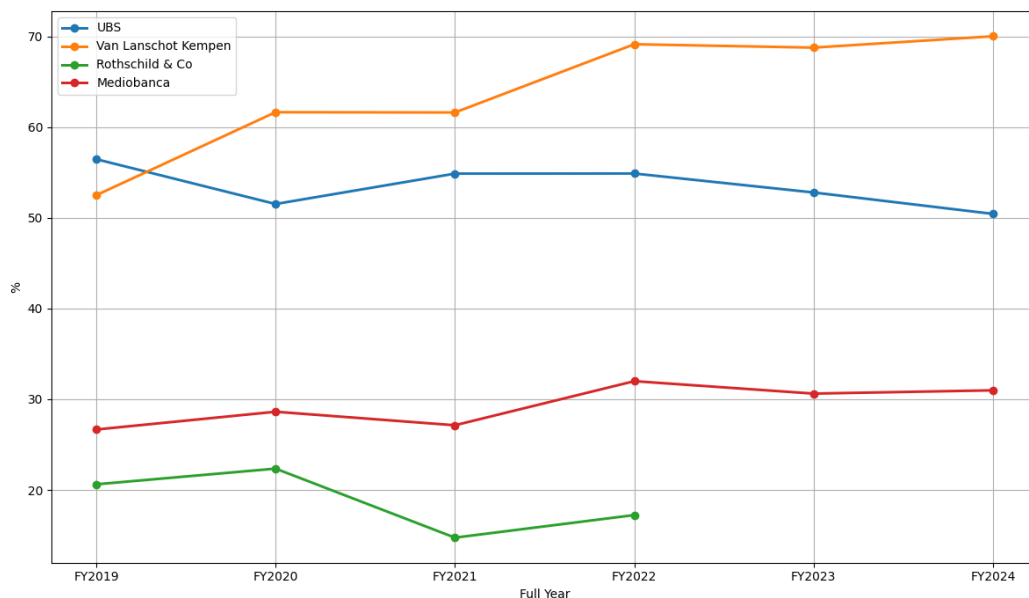


Figure 20: private banking institutions (cluster 1) by PBWM revenue share over total Group's revenues.

This cluster 1 is, by construction, revenue-dominated by PBWM, with shares ranging roughly from ~20% to ~70%. Van Lanschot Kempen is the clear outlier at the top, showing a very steep uptrend rising from about circa 52% to around 70% by FY2024, demonstrating the PBWM nature of the institution. UBS stays consistently high but trends slightly down overall, moving from the mid-50s to roughly ~50% by FY2024. Mediobanca sits at a solid mid-level among its peers, broadly in the high-20s and low-30s range. On the other hand, Rothschild & Co revenue from PBWM remain, in %, lower than its cluster peers, roughly ~21–22% in FY2019 and FY2020 and closer to the mid-teens in the later available observations, with the same problem as for the first metric: the missing Annual Reports for FY2023 and FY2024 precluding the rigorous calculation for the metric on those year. This fact states that, despite having a high weight of PBWM AuM on balance sheet assets, the revenue creation from private banking is not yet as pivotal as peers, offset by advisory and IB operations.

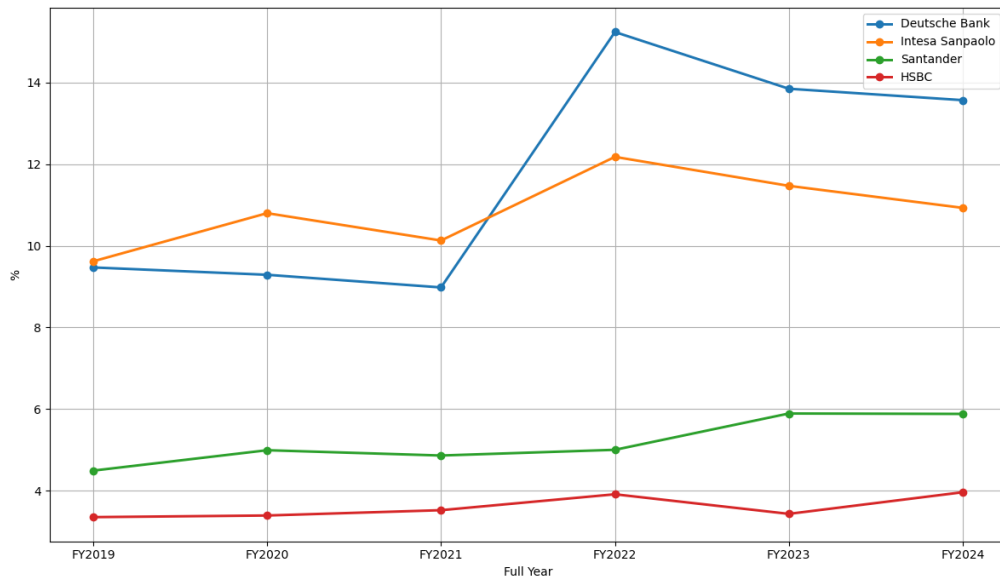


Figure 21: private banking institutions (cluster 2) by PBWM revenue share over total Group's revenues.

Our second cluster shows PBWM as a meaningful but non-dominant profit pool, mostly between 3% and 15% among the peers, approximately. Deutsche Bank and Intesa lead the cluster: Deutsche sits around 10% early on and peaks in the mid-teens (~15%) around FY2022, remaining in the low-to-mid teens afterward. Intesa stays broadly in the ~10–12% range, ending just under ~11%. Santander is notably lower, trending from roughly ~4.5% toward ~6% by FY2024. HSBC is the group from this cluster with the smallest values for our metric, hovering around ~3–4% throughout our entire period.

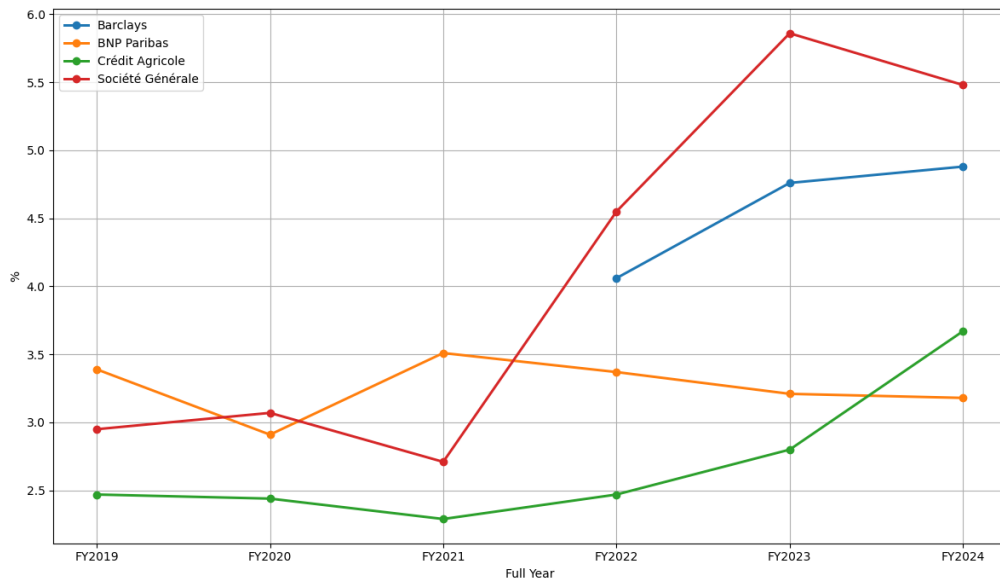


Figure 22: private banking institutions (cluster 3) by PBWM revenue share over total Group's revenues.

The last cluster concentrates the institutions with a lower PBWM revenue weight compared to the first two clusters, oscillating within the ~2%–6% band. Société Générale presents the most aggressive uptrend among its cluster peers jumping from circa 3% to almost double that figure, i.e. 6%. Fellow co-national BNP Paribas is relatively stable around the low-3% area during the whole period, while its other co-national Crédit Agricole experienced an interesting uptrend as well on the metric, starting around the mid-2% range, reaching roughly ~3.7% by FY2024. Regarding Barclays, other than the fact the whole PBWM operations were inside Barclays UK and Barclays International until FY2021 (excluded), the British institution has as well showed an uptrend for the years within our time series where it was possible to compute the metric, rising from ~4% in FY2022 to just under 5% by FY2024. It is crucial to remark that BNP Paribas' result for this metric is not a stated result as for its peers since it was not explicit in their annual reports nor additional material on none of the years of the selected period. Due to this situation, for BNP, the metric was calculated as an approximation of the pure PBWM revenue through the share of the AuM associated with BNP's PBWM activity over the total a sum of AuM composed by the ones related to PBWM and the ones to Asset Management division; the key to get the approximation was the fact that BNP makes public the revenues from PBWM + AM division (without splitting), and the AuM of both division separately, so it was possible to get two weights based on the AuM and multiply them to the total revenues of PBWM + AM to ultimately get the two separate revenue streams, the PBWM and the AM, and finally compute the metric just dividing the PBWM revenue stream over the total BN Paribas Group revenue.

Overall, this PBWM section shows that private banking within the shortlisted European institutions cannot be read through a single lens: scale in client assets, relative weight versus the balance sheet, and contribution to group revenues do not always move together, as happened during this analysis with Rothschild & Co, because they reflect different operating models and revenue engines. The three-cluster approach helps disentangle these structural differences by separating wealth-led specialists, e.g. VLK and UBS, multi-engine groups with a sizeable wealth leg, e.g. Deutsche Bank or Intesa, and diversified universal banks where PBWM is a complementary activity, e.g. Crédit Agricole. As a result, the graphs should be interpreted primarily as indicators of business mix and monetization rather than as a direct ranking of “performance” in isolation. This framing provides a consistent basis to compare institutions despite heterogeneous segment reporting, while also making transparent the few cases where missing data, as happened in UniCredit and BBVA and partially for Barclays and Rothschild, or perimeter differences limit strict comparability.

1.4 Public banking

In this final section of Chapter 1, the analysis shifts away from private-sector profitability logic toward the public mandate of development banks and savings-bank networks, where performance is more appropriately assessed through ESG-driven and mission-linked indicators rather than conventional shareholder metrics. Because public banking models are structurally heterogeneous, the section follows a bank-by-bank approach, selecting one representative public(-mandated) institution for each major European market and tracking, over FY2019–FY2024, the metrics that most directly capture the drivers previously elucidated for this type of banking.

The sample of banks comprises the British Business Bank (UK), a national development bank focused on SME finance and countercyclical intervention; the Sparkassen-Finanzgruppe (Germany), a decentralized savings-bank system anchored in local public-welfare support; and BNG Bank (Netherlands), a specialised public-sector financier that increasingly mobilizes sustainable capital-market instruments. It also includes the large state-backed investors Caisse des Dépôts et Consignations (France) and Cassa Depositi e Prestiti (Italy), both central to financing ecological transition, SMEs, and local public-sector investment, as well as the Instituto de Crédito Oficial (Spain), a government-owned policy bank channeling funding to enterprises and public entities. In practice, the selected metrics trace how each institution scales and targets impact, ranging from SME finance provision and pandemic-era stabilization to public-welfare allocations and ESG funding shares, allowing a coherent, comparable narrative of how public banks translate policy objectives into measurable outcomes, particularly under the stress test of COVID-19 and the subsequent pivot toward longer-term transition priorities.

Starting from the British Business Bank, this institution demonstrate a huge commitment with SMEs during COVID-19 increasing substantially its supply of finance for SMEs, which is defined by the institution as the total volume of debt, equity, and guaranteed funding made available to smaller businesses through the British Business Bank’s core programmes, e.g. Enterprise Finance Guarantee, Start Up Loans Programme, etc., on behalf of government agencies, as well as with the total COVID-19 schemes expenditures, defined as extraordinary, temporary financial support deployed by the British Business Bank on behalf of the UK Government during the COVID-19 pandemic, primarily through emergency loan guarantee schemes such as CBILS, CLBILS, BBLs, and the Future Fund, to businesses.

The evolution of these metrics can be seen in the graph below:

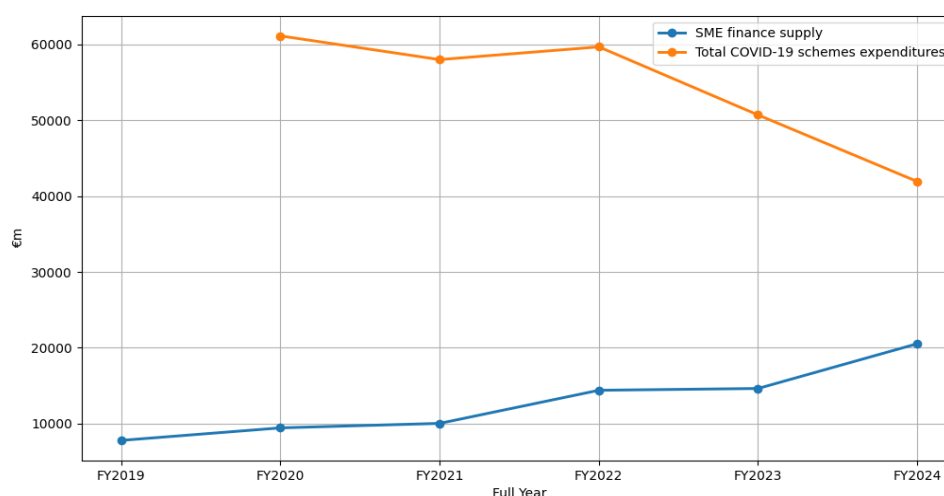


Figure 23: evolution of metrics associated to British Business Bank throughout selected period.

The uptrend of supply of finance of finance is latent throughout the whole selected period, generating a CAGR of 21.40% across the period, moving from rough 7,8 billion euros to more than 20 billion (numbers converted from original ones in GBP), and providing this mass of resources to a population of British business mostly outside of London; 83% of SMEs benefited from these funds were located outside of the British capital city. Regarding COVID-19 metric, the level of schemes expenditures was of course kept high during the first three years of the pandemic and then, once restrictions started to lighten, the level of metric decrease accordingly.

For the Germany, Sparkassen is the natural benchmark for public banking, given its decentralized savings-bank model and its long-standing role in financing local economies while maintaining a direct, measurable social commitment through donations, sponsorships, and community-oriented funding. To proxy this ESG/social mandate in a way that is both tangible and consistently reported, two funding aggregates are retained over FY2019–FY2024; the first one is the total social commitment funding, i.e. the overall amount allocated by the Group to public-welfare purposes, such as culture, sport, social projects, environment, research/science, and other purposes. The second metric consists of an item of the first one, which is the funding allocated to social projects and other public welfare purposes, that is a more targeted sub-aggregate capturing the categories most directly linked to social inclusion and community welfare.

The evolution of these metrics can be seen in the graph below:

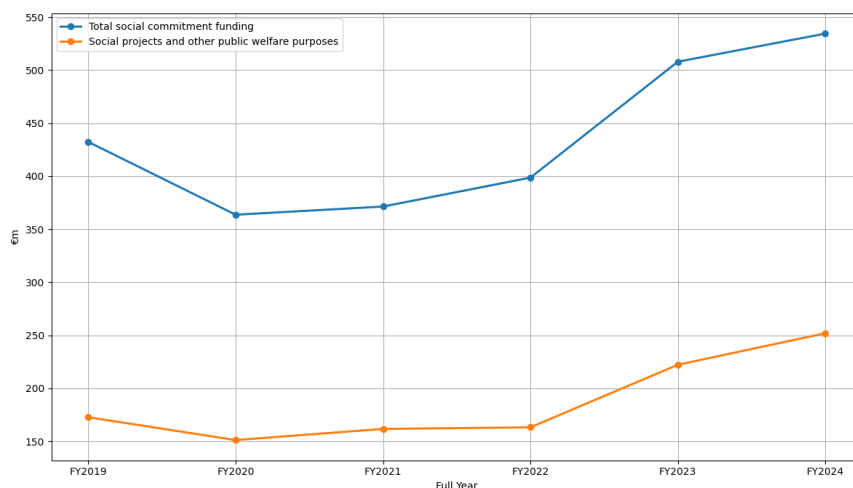


Figure 24: evolution of metrics associated to Sparkassen-FG throughout selected period.

The graph shows that the COVID-19 emergency halted the progression of both metrics to then start a positive trend from FY2022 to FY2024. Throughout our period, the total social commitment yielded a CAGR of 4.33%, moving from circa 432 million euros in FY2019 to more than 530 million in FY2024. The total amount of fundings allocated to social project and other public welfare purposes jumped logically according to the first metric, starting at roughly 173 million euros (40% of the whole Sparkassen’s social commitment funding) to more circa 252 million euros (47% of the total social commitment funding of the group)

For the Benelux region, the chosen institution was the Dutch BNG Bank, a public-banking benchmark given its specialized role as a public-sector financier and its growing reliance on sustainable capital-market instruments. To proxy BNG’s ESG commitment over FY2019–FY2024 in a way that is both tangible and consistently reported, two funding-side aggregates are retained; the first one is the ESG bonds issued per annum (p.a.), which captures the annual volume of labelled sustainable issuance used to fund eligible public-purpose assets and projects. The second is the long-term (total) funding raised p.a., which measures BNG’s total long-term market funding whose main scope is financing the growth of BNG’s long-term loan portfolio for public-sector clients, such as municipalities, housing associations and other public institutions. This second metric provides the natural denominator of a ratio where the numerator is our first metric; this ratio has purpose of assessing whether ESG-labelled issuance is rising because BNG issues more funding overall beyond this type of financial instrument, or because ESG bonds account for a larger share of its funding mix. The evolution of these metrics can be seen in the graph below.

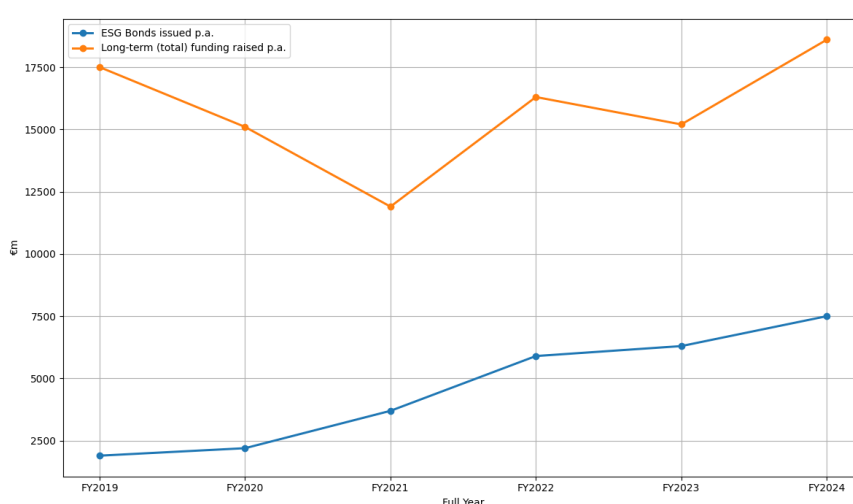


Figure 25: evolution of metrics associated to Sparkassen-FG throughout selected period.

The series shows that BNG’s sustainability funding strategy becomes materially more prominent over time. ESG bond issuance rises from 1.9 billion euros in FY2019 to 7.5 billion euros in FY2024, implying a rapid scale-up and a CAGR of circa 32%. Over the same period, total long-term funding is comparatively stable, moving from 17.5 billion euro to €18.6bn at the end of the period, generating a subtle CAGR of circa 1.2%, and displaying cyclical variation. This contrast is important: it indicates that the growth in ESG issuance is not primarily driven by “more funding overall”, but by a decomposition of BNG’s funding mix toward labelled instruments. In proportional terms, ESG issuance increases from roughly 11% of long-term funding in FY2019 to about ~40.3% in FY2024, i.e., nearly a fourfold increase in share. Taken together, the metrics suggest a clear structural pivot: BNG increasingly uses ESG-labelled bonds as a core channel to finance public-sector activities, rather than treating them as a marginal add-on to conventional wholesale funding.

Regarding France, the selection of the public banking institution was fairly evident; Caisse des Dépôts et Consignations (CDC), the biggest French public financial institution, widely considered as the investment arm of the French State with an explicit role in channeling long-term capital into both ecological transition and the financing of the productive economy.

To reflect this dual mandate over FY2019–FY2024, two commitment-based indicators are retained. The first is the amount committed to ecological transformation, which captures annual commitments directed toward climate and transition priorities, financing and investing in energy efficiency

renovation and exemplary new construction, low-carbon mobility, decarbonization of industry and renewable energy. The second is the annual amount committed to SMEs, VSEs and mid-caps (i.e., financing to small, very small and mid-sized firms through facilitated loans, small equity stakes, guarantees and co-financing mechanisms, which proxies CDC's support to entrepreneurship, employment and business scaling in its country. The evolution of these metrics can be seen in the graph below.

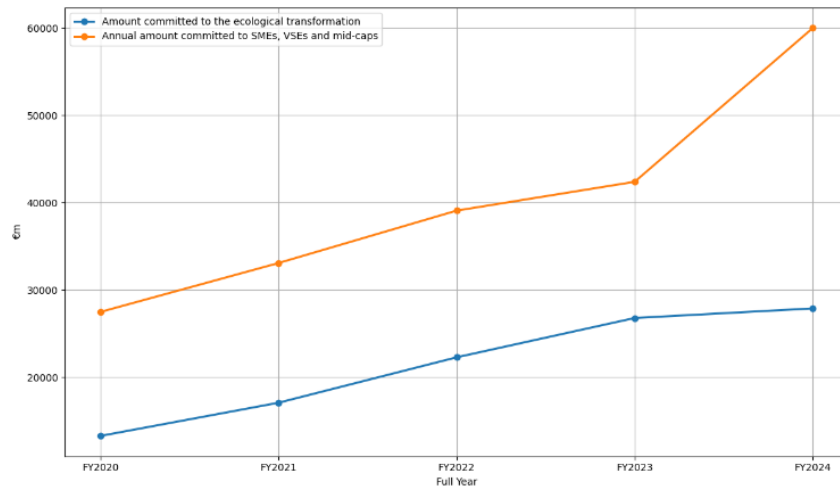


Figure 26: evolution of metrics associated to CDC throughout selected period.

Both lines trend upward, but with different intensities. Commitments to ecological transformation rise from 13.3 billion euros at the start of our period, FY2020 since there was no reporting of none of our metrics in FY2019, to almost 28 billion euros in FY2024, yielding a CAGR roughly 20.4%, while SME/VSE/mid-cap commitments also expand materially, from 27.5 billion euros to more than double this initial number, ending up around 60 billion euros in FY2024, and with a CAGR on the period of circa 21.5%. Taken together, the metrics suggest that CDC did not simply “maintain” a public role post-COVID; rather, it scaled both transition and SME-oriented commitments, consistent with a strategic pivot toward longer-term transformation and productive investment.

For Italy, quite the same situation goes regarding the selection of the most significant public banking institution; Cassa Depositi e Prestiti (CDP), in this case. The biggest public financial entity in the Italic country plays a central role in delivering policy-oriented financing and acting as a long-term balance-sheet investor. Here, the selected metrics combine a volume indicator with a macro-relevance proxy. The first is the new (annual) lending amount, which captures the yearly flow of newly originated lending and gives a direct sense of CDP's financing intensity. The second is the aggregated impact of the group on Italian GDP (%), which you included as an additional, more “outcome-style” indicator, useful to translate the institution's activity into a macroeconomic footprint. The evolution of these metrics can be seen in the graph below.

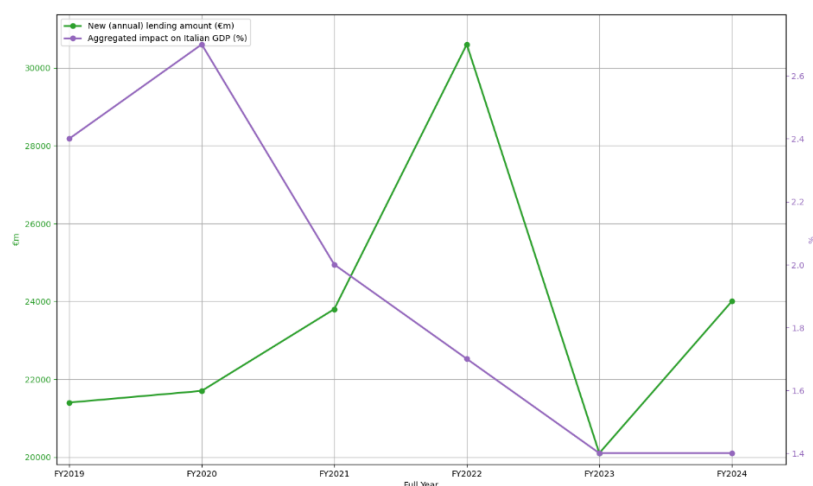


Figure 27: evolution of metrics associated to CDP throughout selected period.

From the graph above, new annual lending is clearly non-linear across our FY2019–FY2024 period: it moves from slightly more than 21 billion euros in FY2019 to roughly 24 billion euros in 2021, then peaks at 30.6 billion the next year, before dropping to the level of 20 billion and then experienced a modest recovery back to 24 billion euros. This profile reads less like a smooth growth trajectory and more like programme/cycle-driven public intervention, with FY2022 standing out as an exceptional year. The GDP-impact metric points in the same direction: it is highest around the pandemic phase (2.7% in FY2020), then declines and stabilizes at 1.4% in FY2023–FY2024, consistent with a normalization after extraordinary conditions. In short, these metrics frame CDP as a public financial institution whose intensity varies with macro context, while its system-level contribution remains material even after the COVID peak.

To conclude, the chosen one for Spain is as well the clearest example of predominant national-wide public bank; ICO is best described as a government-owned policy bank that channels credit to firms and public entities, and its social mandate is visible through both the size and the composition of its lending.

The first metric, net loans and advances to customers, reflects the stock of customer lending net of impairment losses (i.e., after accounting for credit deterioration), and therefore provides a conservative measure of ICO’s effective credit exposure to its client base, which is mostly composed of SMEs and certain self-employed professionals. The second metric, direct loans to domestic public administrations, isolates the portion of ICO’s lending that is extended directly to Spanish public-sector entities, capturing the institution’s role as a financier of public bodies alongside its support to the broader economy. The evolution of these metrics can be seen in the graph below.

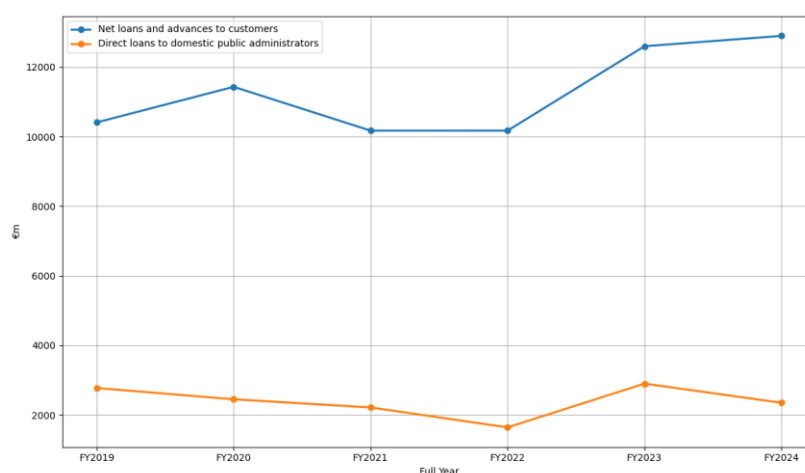


Figure 28: evolution of metrics associated to ICO throughout selected period.

Over FY2019–FY2024, net customer lending increases overall from €10.41 billion to €12.90 billion generating a CAGR over the period of circa 4.4%, with a dip in FY2021–FY2022 followed by a clear, mainly caused by COVID-19 health crisis, stepping-up in FY2023–FY2024. Direct lending to domestic public administrations, by contrast, trends downward into FY2022 (from 2.77 billion euros in FY2019 to 1.64 billion euros in FY2022, before rebounding in FY2023 to 2.90 billion euros, slightly easing again in FY2024 to 2.35 billion euros. This divergence is reflected in the public-administration share of customer lending, which declines from roughly 26.6%, in FY2019, to 16.1%, FY2022, then partially reverses in FY2023 (~23.0%) before settling at circa 18% in FY2024. Overall, the joint reading suggests that ICO’s customer loan book expanded over the period while the relative weight of direct public-administration lending fell compared with the pre-pandemic structure, indicating a gradual rebalancing toward non-PA customer activity with a temporary public-sector upswing in FY2023.

Overall, the public-banking evidence consolidates the chapter’s main message: across major European markets, banks operate under markedly different business models and incentive structures, so performance cannot be assessed through a single profitability lens alone. In the public segment, development banks and savings-bank groups translate policy objectives into observable outcomes through SME and public-sector financing, community welfare support, and—in some cases—the increasing use of ESG-labelled market funding. Despite differences in disclosure and programme design, the selected FY2019–FY2024 indicators point to a consistent pattern: COVID-19 acted as a stress test and a catalyst, first compressing or redirecting activity during the emergency phase and then accelerating a return to, and in several cases an expansion of, longer-term mandates such as inclusive growth, local investment, and ecological transition. Taken together, Chapter 1 provides the institutional foundation for the remainder of the thesis by mapping how heterogeneous European banking models—private and public—operationalize their objectives in practice, and by motivating the macroeconomic context examined in the next chapter.

2. Large-scale impact of COVID-19 on the banking sector in Europe

In this second chapter, the analysis shifts from institution-level mandates to the macroeconomic transmission of the COVID-19 shock across the European banking environment. Using a set of cross-country macro indicators (e.g., trade, inflation, and market stress proxies), the chapter documents the scale and timing of the disruption in the main markets considered in this thesis and provides the empirical backdrop for understanding how the pandemic shaped banking conditions and performance.

2.1 Macroeconomic impact of COVID-19 in Europe

It is hard evidence that COVID-19 pandemic hit international trade from several directions at once, triggering a thorough macro (and micro) economic crisis at a global level. As households and firms cut spending, demand for most consumer goods dropped sharply, while lockdowns and health measures also disrupted production and slowed down logistics and transport operations across borders. The shock was scaled up to a global level in a matter of a few weeks and largely synchronized, despite presenting an uneven impact across nations: countries and sectors that rely more heavily on international supply chains, complex manufacturing networks, and/or cross-border inputs, such as Germany and Italy in the EU, tended to experience larger disruptions than those with more a more domestic-oriented production context.

2.1.1 Literature review

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Using highly granular Italian customs data, Bank of Italy's Gianmarco Cariola working paper (2023) *Trade in the Time of COVID-19*, treats Italy as an early European "laboratory" and documents a steep, immediate drop in both imports and exports during the first wave. The paper links the size of the contraction to differences in firms' exposure to lockdown intensity and their dependence on imported inputs, illustrating how micro-level disruptions can quickly translate into large aggregate movements. Importantly, it distinguishes between the direct health shock and the policy response: the authors show that trade declined not only where the epidemiological situation was severe, but also where restrictions and operational disruptions constrained production and logistics. The study also emphasizes persistence risks via hysteresis, whereby temporary shocks may generate lasting trade effects if firms exit markets and face fixed re-entry costs, making post-shock recovery potentially slower than the initial collapse.

Complementing this country-level evidence, Barbero J., de Lucio J.J., Rodríguez-Crespo E. (2021) *Effects of COVID-19 on trade flows*, places the pandemic in a broader cross-country trade framework and emphasizes the heterogeneous response across sectors and partners. The paper provides evidence that the contraction was not uniform across product categories: goods requiring complex production networks and intermediate inputs were especially vulnerable when transport, border procedures, and upstream production were simultaneously disrupted. More broadly, the results suggest that domestic conditions and policy timing mattered in a very intuitive way: the timing and stringency of

containment measures, together with the intensity of the domestic shock, often shaped trade outcomes as much as partner-country conditions, supporting a view of the pandemic as a synchronized but uneven global shock.

A more explicit production-network perspective is developed in, Kejžar K. Z., Velić A., Damijan J. (2022) COVID-19, trade collapse and GVC linkages: European experience, which focuses on how global value chains (GVCs)—where different stages of production are performed across countries and intermediate goods cross borders before becoming final products—transmit shocks. Using monthly bilateral trade data for European Union countries, the study shows that the severity of trade contractions depended on countries' positions within value chains. In particular, economies that were more exposed to downstream demand, i.e. upstream manufacturing economies like Germany and Italy which supply intermediate products to downstream producers, experienced sharper declines in exports of these intermediate goods when their trading partners were hit by lockdowns or demand collapses. By contrast, disruptions linked purely to upstream input shortages appear less dominant during the first wave of the pandemic. Overall, the evidence indicates that demand shocks propagated through production networks were a key driver of the observed trade collapse, highlighting the vulnerability of highly integrated supply chains to systemic shocks.

Across these contributions, three takeaways are directly relevant for a macro-to-banking narrative. First, the trade contraction was abrupt and concentrated in the first pandemic wave, before gradually normalizing as restrictions eased and supply chains adapted. Second, production fragmentation and the reliance on intermediate inputs helps explain why upstream suppliers can be hit hard when downstream demand falls; in this sense, supply constraints (mainly for upstream economies, e.g., DE, IT) can generate large downstream trade and output effects. Third, the literature consistently documents substantial cross-sectional differences—across countries, sectors, and firm types—implying that aggregate trade series may mask compositional changes in what is traded (for example, different resilience between consumer goods and intermediate or capital goods). These insights motivate the empirical section of this thesis, which tracks exports and imports over FY2019–FY2024 for selected European economies and compares the pandemic shock with the subsequent normalization phase, thereby linking macro trade dynamics to the operating environment faced by banks and to the policy context discussed next.

The literature on the euro area policy response to COVID-19 typically portrays monetary policy as operating simultaneously through (i) traditional interest-rate and expectations channels and (ii) a set of crisis tools aimed at preserving market functioning and preventing financial fragmentation. In the pandemic, the conventional channel was constrained by already low rates, so the marginal stance was expressed largely through balance-sheet policies and bank funding operations designed to stabilise market pricing and maintain the transmission of monetary policy.

Hutchinson J., Mee S. (2020) The Impact of the ECB's Monetary Policy Measures Taken in Response to the COVID-19 Crisis situates the ECB response within this dual framework, emphasizing how the combination of the Pandemic Emergency Purchase Programme (PEPP), targeted longer-term refinancing operations (TLTROs), collateral easing, and forward guidance sought to stabilize funding conditions while supporting the bank-lending channel. A key theme is that, when policy rates are near effective lower bounds, asset purchases and targeted liquidity operations become central to transmitting accommodation to sovereign and bank funding spreads, thereby protecting credit supply. Mechanically, large-scale purchases and liquidity provision compress risk premia, reduce fragmentation pressures in sovereign markets, and lower banks' marginal funding costs—conditions that facilitate the continuation of credit intermediation during stress.

From a more policy-institutional angle, the Spanish-language report from BBVA Research Castillo S., Doménech R., Jiménez M. (2022) La política monetaria en la eurozona ante la COVID-19

(translated: "Monetary policy in the eurozone in the face of COVID-19") provides a structured overview of the ECB toolkit and its crisis sequencing. It highlights the extraordinary nature of PEPP in terms of flexibility (across jurisdictions and over time) and frames the response as a deliberate attempt to contain fragmentation risks. The report stresses that, beyond headline rates, the monetary stance was expressed through the scale and conditionality of liquidity provision and purchases, which directly mattered for banks' funding and market valuations, especially when market liquidity was impaired and sovereign spreads risked feeding back into bank balance sheets.

To position these euro-area specific contributions in the broader COVID-19 economics debate, Brodeur A., Gray D., Islam A., Bhuiyan S. (2021) *A Literature Review of the Economics of COVID-19* synthesizes a rapidly expanding body of evidence on pandemic shocks and policy reactions. While not focused solely on Europe, the survey is useful for identifying the main macro mechanisms that interact with monetary policy, including simultaneous supply and demand shocks, heightened uncertainty, and the risk of nonlinear feedback loops between real activity and financial conditions. Within this framework, expansionary monetary policy and regulatory actions can be viewed as complementing fiscal stabilization by limiting financial amplification, that is, by preventing liquidity stress, credit tightening, and market dysfunction from turning a temporary shock into a prolonged downturn.

Taken together, the literature regarding policies to face COVID-19 provides an analytical bridge to the empirical section of this thesis. First, it suggests that the ECB policy stance during FY2019–FY2024 should be interpreted using both policy rates (as a summary of the conventional stance) and crisis tools (as the main marginal instrument in 2020–2021). Second, it implies that a purely contemporaneous statistical link between inflation and policy rates may be weak in crisis windows because policy operates with lags and is constrained by financial-stability considerations. Finally, the literature motivates studying banks' balance-sheet strength and liquidity buffers alongside monetary developments, because the effectiveness of transmission depends on banks' capacity to absorb shocks and maintain lending, providing the basis for the subsequent sections on capital requirements and liquidity risk. While the trade and monetary-policy literature explains key real and policy transmission channels of COVID-19, financial market indicators provide a market-based view of stress and expectations that is directly relevant for banks. In the next empirical subsection, this thesis therefore examines European volatility and bank equity performance as complementary evidence linking the macro shock to observable banking-sector outcomes over FY2019–FY2024.

Forcellini M., Vento G. A., Gracikova E. (2026) *The impact of Covid-19 on the market volatility: A quantitative analysis of the Italian banking sector* analyses listed Italian financial intermediaries and document a marked increase in banking-sector volatility during the first wave of COVID-19, followed by a gradual stabilization as policy interventions took effect. Their framework combines descriptive statistics, variance tests, and GARCH-type models to capture time-varying volatility and to distinguish short-run crisis spikes from persistence dynamics. From a prudential and supervisory perspective, the EBA staff paper on market risk and prudent valuation explains how high volatility and reduced market liquidity increase valuation uncertainty and prudent valuation adjustments, creating a direct channel through which market conditions can affect regulatory capital through additional valuation adjustments. Building on these contributions, this thesis adds a multi-country European comparison using standard market indices (bank equity and volatility) to motivate and contextualize the subsequent bank-level analysis.

2.1.2 Impact on international trade

Between 2019 and 2024, European trade experienced arguably the biggest shock of the Old Continent's modern history. The first phase is the COVID-19 disruption in 2020, which caused an abrupt fall in cross-border activity due to weakened demand, production constraints, and logistics disruptions. The second phase is the rebound in 2021, when reopening and supply-chain normalization supported a recovery in trade flows. From 2022 onward, interpretation becomes more nuanced: trade values were strongly affected by the energy shock and wider price effects, meaning that nominal trade series can rise even when underlying volumes are less dynamic. To keep these dynamics readable, this section splits trade into intra-EU27 and extra-EU27 flows, as these two channels can respond differently to crises and to global price shocks.

Importantly, all trade figures used in this section refer to trade in goods (merchandise), not services. For the European Union (EU27) and Switzerland, the series are retrieved from Eurostat Comext, using the dataset "International trade of EU and non-EU countries since 2002 by SITC" (online data code ds-059331). The SITC classification applies to goods, and Comext is Eurostat's reference database for international trade in goods. For the United Kingdom, comparable series are taken from the UK's official trade in goods statistics published by the Office for National Statistics (ONS), which are distinct from the UK's balance-of-payments statistics on trade in services. For Switzerland, the trade series are additionally consistent with the Swiss authorities' foreign trade (goods) statistics, which report imports and exports of merchandise by partner and commodity classifications.

Additionally, the analysis also computes trade-share indicators to quantify how much each economy's trade is oriented toward EU partners versus the rest of the world, so extra-EU. For each year, the extra-EU export share is defined as $\frac{\text{Extra-EU27 Exports}}{\text{Extra-EU27 Exports} + \text{Intra-EU27 Exports}}$, while the extra-EU import share is $\frac{\text{Extra-EU27 Imports}}{\text{Extra-EU27 Imports} + \text{Intra-EU27 Imports}}$, the corresponding intra-EU shares are simply the complements. These ratios transform nominal trade values into a composition measure, allowing the analysis to distinguish changes in the structure of trade (EU-centric vs global) from changes in overall trade levels. A rising extra-EU share indicates greater exposure to external demand, global supply chains, and global price shocks (notably energy and commodities), whereas a higher intra-EU share reflects stronger reliance on the EU single market and regional production networks.

The display of results will start with the exports, since they provide the most direct signal of external demand for domestic production and therefore offer a clean first reading of how the COVID shock and subsequent recovery propagated through European economies, before turning to imports and then to overall exposure to extra-EU trade. The evolution of these exports and its share in overall trade can be seen in the graphs below.

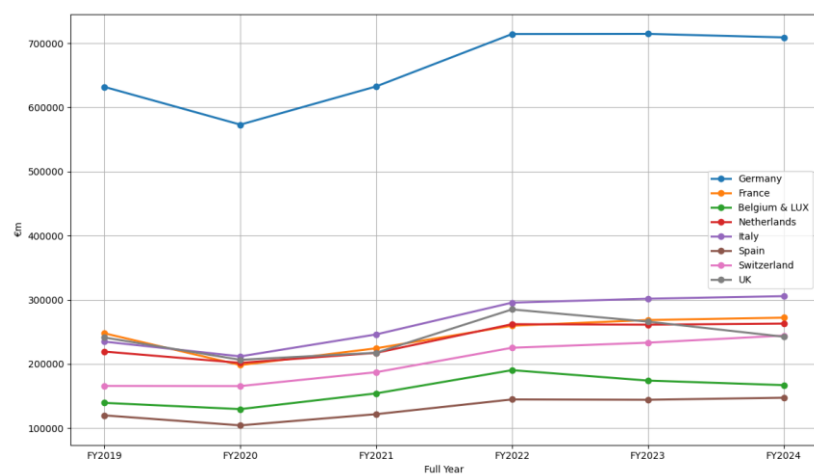


Figure 29: evolution of extra-EU27 exports for each selected country.

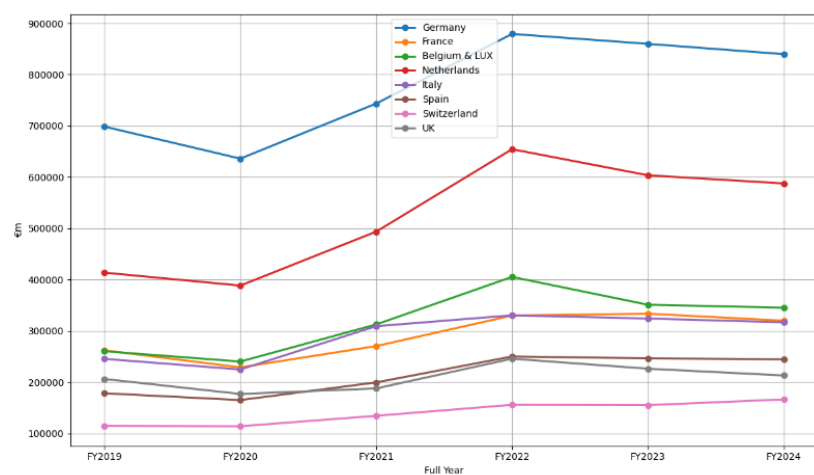


Figure 30: evolution of intra-EU27 exports for each selected country.

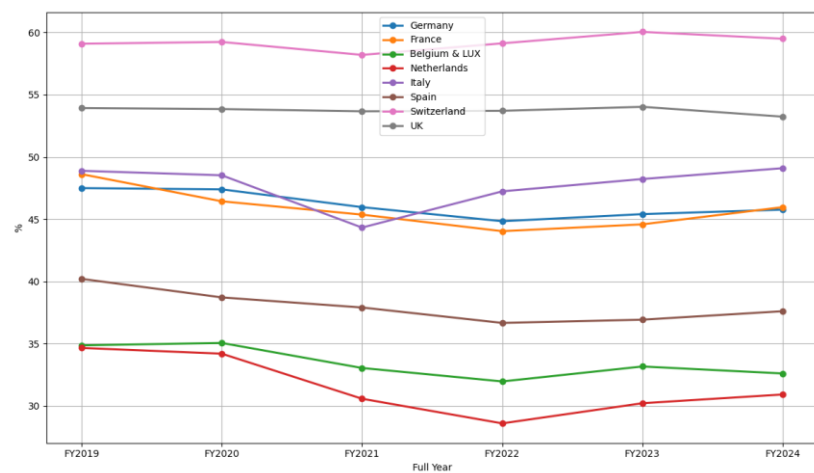


Figure 31: evolution of extra-EU27 export share for each selected country.

Across the three export graphs, a consistent COVID shock–rebound pattern emerges: exports fall in FY2020 and then recover strongly into FY2021–FY2022. For extra-EU exports (Figure 27), Germany remains dominant, dropping from 632 billion euros in FY2019 to 573 billion the next year before rebounding to roughly 714 billion euros in FY2022–FY2023 and easing slightly to 709 billion euros in FY2024. Intra-EU exports (Figure 28) rebound even more sharply, underlining the role of the single market; this is most striking for the Netherlands, whose intra-EU exports jump from 388 billion euros in FY2020 to 494 billion euros in FY2021 and then to 654 billion euros in FY2022, before moderating to 588 billion euros in FY2024; a scale and trajectory consistent with a hub/re-export role as The Netherlands is. The composition plot confirms that the recovery was not uniform across partner regions: Germany’s extra-EU export share declines from about 47.5% in FY2019 to ~44.8% in FY2022, and France’s from ~48.6% to roughly 44.0%, implying intra-EU demand recovered faster during the rebound. By contrast, Italy’s extra-EU share rises from ~44.3% in FY2021 to approximately 49% in FY2024, signaling a clear strengthening of extra-EU markets in the later phase for the Italian Republic. Structural differences are clearest for non-EU economies: Switzerland and the UK maintain the highest extra-EU export shares throughout (roughly ~59–60% and ~53–54%, respectively), reflecting a persistently more global export orientation than EU member states, mainly to the United States of America.

Having established how exports reacted across intra- and extra-EU markets, the analysis now turns to imports, which capture the demand side of domestic consumption and investment and, crucially, the economy’s exposure to external suppliers. This is particularly relevant from FY2022 onward, when energy and commodity price shocks affected import values unevenly across countries and between intra- and extra-EU flows. The evolution of these exports and its share in overall trade can be seen in the graphs below.

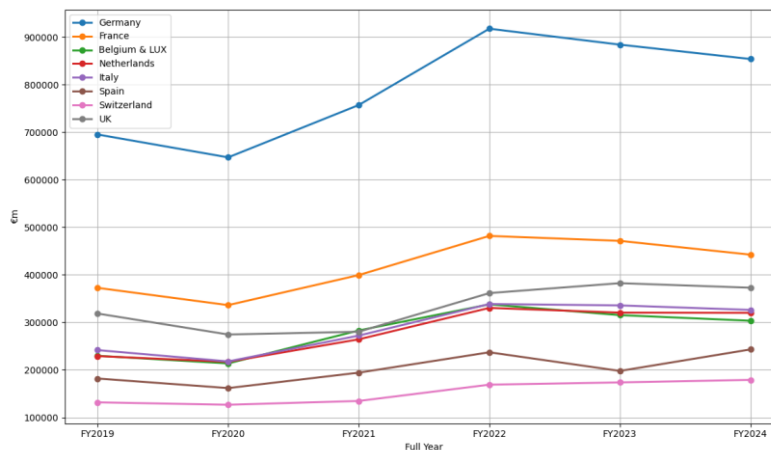


Figure 32: evolution of extra-EU27 imports for each selected country.

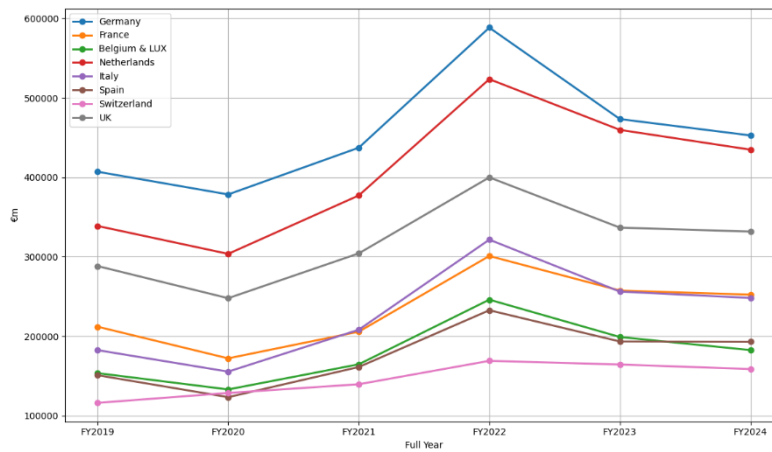


Figure 33: evolution of intra-EU27 imports for each selected country.

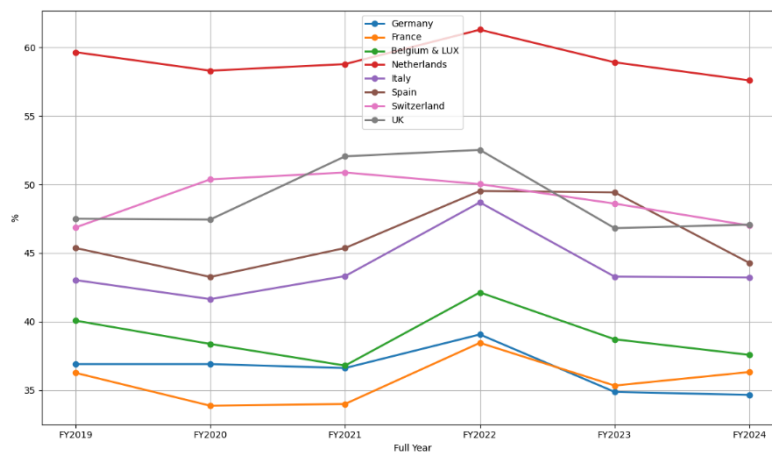


Figure 34: evolution of extra-EU27 imports share for each selected country.

For imports, we can see from the three pertaining graphs that the same shock–rebound dynamics appear, clearly triggered by the pandemic, but with an even clearer FY2022 “price-shock” signature. Extra-EU imports fall in FY2020 and then surge sharply into FY2022: for instance, Germany’s extra-EU imports rise from 378 billion euros in FY2020 to 437 billion euros in FY2021 and peak at 588 billion euros in FY2022 before normalizing to 473 billion euros in FY2023 and 453 billion euros in the last year of our period. The Netherlands shows the most pronounced jump in levels, climbing from 304 billion euros in FY2020 to 377 billion euros in FY2021 and 523 billion euros in FY2022, then easing to 435 billion in FY2024, consistent with its role as a major European entry point for global goods. Intra-EU imports also recover strongly after FY2020 and peak around FY2022 (e.g., Germany rises from 647 billion euros (FY2020) to 757 billion (FY2021) and then spiking to 918 billion in FY2022, before easing subtly to circa 855 billion euros at the end of our period), suggesting the rebound was broad-based across both EU supply chains and external sourcing. The extra-EU import share highlights the structural differences: the Netherlands remains the most extra-EU-dependent importer in the sample (around ~58–61%, peaking near 61% in FY2022), while Germany and France remain structurally lower (Germany roughly ~35–39%, France ~34–38%), reflecting a stronger reliance on intra-EU sourcing. Notably, several countries’ extra-EU import shares rise in FY2022 (e.g., Spain to roughly ~49.5% and Italy to ~48.7%), consistent with the idea that the 2022 energy/commodity shock inflated extra-EU import bills more than intra-EU flows; this makes

perfectly sense since energy and commodities like crude oil, natural gas/LNG, petroleum products, coal, etc., are counted in Comext/SITC/ONS as physical products, i.e. goods, in merchandise trade statistics

To complement the country-by-country patterns, it is also useful to step back and look at the EU27 aggregate series. Aggregation makes it easier to highlight the overall trade cycle; the 2020 COVID shock, the 2021 rebound, and the sharp rise in nominal values in 2022, while approaching a filtering-out logic regarding fluctuations driven by country-specific features and idiosyncratic trade structures. (for example, hub effects in the Netherlands or the more global orientation of non-EU economies). In this sense, plotting the EU27 totals alongside the disaggregated figures provides a clearer benchmark for interpreting whether a given country's trajectory reflects a European-wide trend or a more idiosyncratic trade profile.

A practical way to present this is with two synthetic graphs. First, a combined chart showing EU27 exports and imports over FY2019–FY2024, split into intra-EU27 and extra-EU27 flows, to visualize the overall shock–rebound–re-pricing sequence in a single view. Second, a chart focusing only on extra-EU exports and extra-EU imports, which highlights the EU's exposure to the rest of the world and makes the FY2022 price-driven jump (especially on the import side) easier to read. This approach keeps the narrative compact while reinforcing the core message: intra-EU dynamics capture the resilience of the single market, whereas extra-EU flows are more sensitive to global disruptions and price shocks.

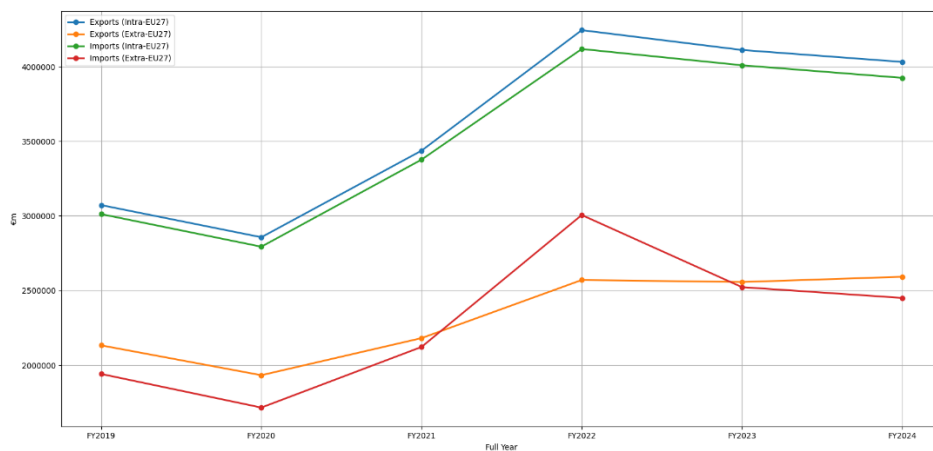


Figure 35: evolution of exports and imports (extra- and intra-EU27) for EU27 region.

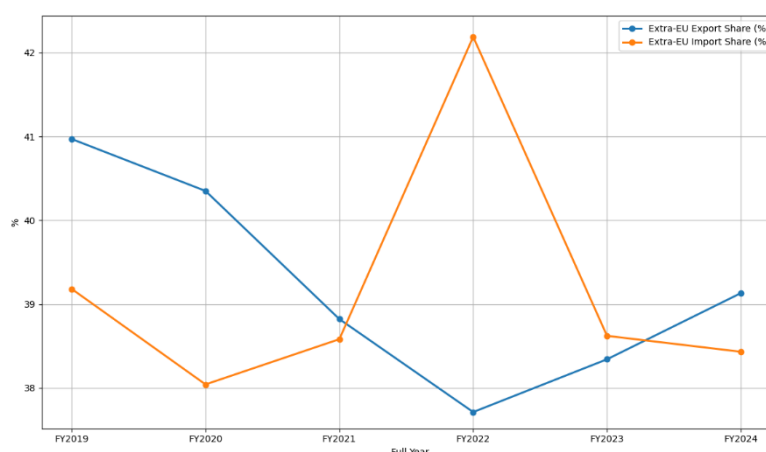


Figure 36: evolution of extra-EU27 export and import shares for EU27 region.

On the EU27 aggregate series, the shock–rebound–re-pricing sequence is very clear. Both intra-EU and extra-EU trade fell in FY2020, then recovered strongly in FY2021. The rebound peaks around FY2022, where nominal values jump across all four lines; however, the increase is particularly pronounced for extra-EU imports, which spike far more than extra-EU exports, consistent with the 2022 energy/commodity price shock inflating the euro value of goods imported from outside the EU. After FY2022, intra-EU exports and imports remain elevated but gradually ease into FY2023–FY2024, while extra-EU trade also normalizes from its FY2022 peak.

The share chart reinforces this interpretation. The extra-EU export share declines from roughly 41% in FY2019 to a trough near 38% (FY2022), indicating that intra-EU exports recovered faster during the post-COVID rebound. In contrast, the extra-EU import share rises sharply to about 42% in FY2022, before reverting close to 38–39% in FY2023–FY2024. Put differently, FY2022 marks a temporary divergence: the EU’s imports became relatively more extra-EU-oriented (in value terms), while exports became relatively more intra-EU-oriented; an aggregate pattern that fits well with a price-driven external import shock layered on top of the broader post-pandemic recovery.

2.1.3 Inflation, producer prices and interest rate policy

This section examines how the COVID-19 shock and its aftermath reshaped the European price environment and the monetary policy response. The approach will be to present the evolution of consumer inflation, using consumer price index (CPI), and producer prices, using the producer price index, PPI, over our selected period starting on FY2019 through FY2024, highlighting the post pandemic acceleration in price pressures and the subsequent normalization. Because consumer and producer prices can move differently, especially when shocks originate in energy, commodities or upstream supply constraints, the section then uses the PPI series to capture the “pipeline” component of inflationary pressure.

Finally, the analysis connects these developments to the monetary policy stance of the relevant central banks among the selected major markets for this thesis, which are the European Central Bank (ECB), the Swiss National Bank (SNB), and the Bank of England (BoE), using policy rates as the main proxy and nuancing what simple linear regressions can and cannot reveal about inflation-policy relationship over this period. All data has been retrieved from Eurostat, the Swiss Federal Statistical Office and UK’s Office for National Statistics.

Below, the first graph depicting the evolution of inflation of all major markets selected.

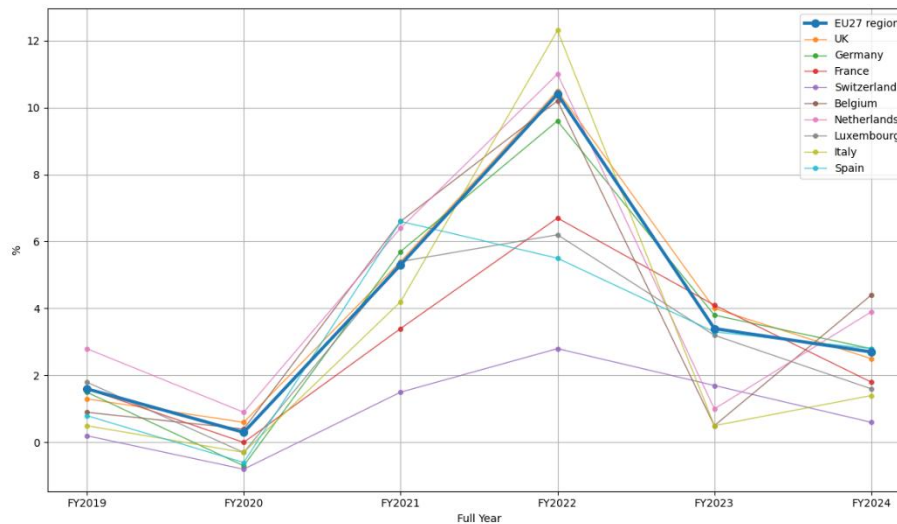


Figure 37: evolution of annual inflation for each selected country.

Consumer inflation follows the same broad chronology but with different intensity across countries. For the EU27, inflation drops from 1.6% in FY2019 to 0.3% in FY2020, reflecting the pandemic-driven demand collapse and the temporary compression of energy prices, then accelerates to 5.3% in FY2021 as reopening and supply bottlenecks emerge, and peaks at 10.4% in FY2022 amid widespread cost pressures. It then declines through the disinflation phase, reaching 2.7% in FY2024, indicating that inflationary pressures eased substantially but did not immediately revert to pre-COVID levels. As shown in Figure 34, FY2022 is the critical year: most economies experience a sharp inflation spike, with Italy at 12.3%, the Netherlands at 11.0%, and the UK at 10.5%, while Germany rises to 9.6% and France peaks lower at 6.7%, suggesting a more muted pass-through to consumer prices. Switzerland differs markedly from the EU experience: inflation turns negative in FY2020 (-0.8%), rises to 1.5% in FY2021, and peaks at only 2.8% in FY2022, before easing to 1.7% in FY2023 and 0.6% in FY2024, consistent with a substantially more contained inflation cycle over the period.

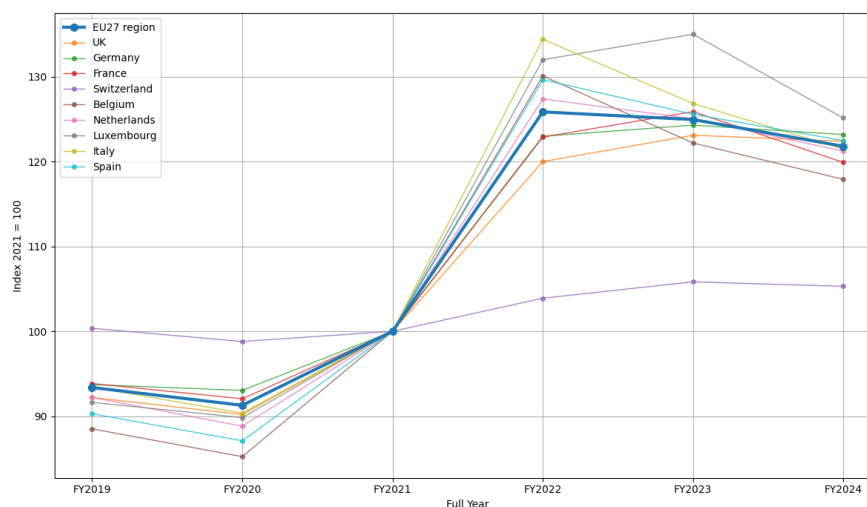


Figure 38: evolution of annual producer price index for each selected country.

Producer prices exhibit an even clearer upstream shock concentrated in FY2022. For the EU27, the PPI (index 2021 = 100) rises from 100.0 in FY2021 to 125.9 in FY2022, before easing to 124.9 in FY2023 and 121.8 in FY2024, indicating that the peak cost pressure was largely concentrated in 2022 and then gradually unwound. This surge is broad-based across EU economies: Italy reaches 134.4 in FY2022, Belgium 130.1, Spain 129.7, and the Netherlands 127.4, while Germany and France rise to 123.0 and 122.9, respectively. In YoY terms, this corresponds to a jump of roughly +25.9% for the EU27 in FY2022, followed by a near-flat change in FY2023 (-0.7%) and a further decline in FY2024 (-2.5%), consistent with a sharp price shock followed by gradual normalisation. Switzerland again stands out as an outlier: its PPI increases only to 103.9 in FY2022 and remains close to 105–106 in FY2023–FY2024, implying a much more muted upstream price shock than in the EU and aligning with the comparatively contained inflation profile observed over the same period.

Taken together, the inflation and producer prices patterns indicate that the post-pandemic inflation episode was not only demand-related but also strongly shaped by upstream cost pressures, especially during 2022, while Switzerland experienced a notably milder shock on both producer and consumer prices. This sets up the next step of the analysis: assessing how the ECB, SNB, and Bank of England adjusted their policy rates as inflation moved away from target, and whether the timing and magnitude of tightening appear consistent with the differing inflation dynamics observed across the EU, Switzerland, and the UK.

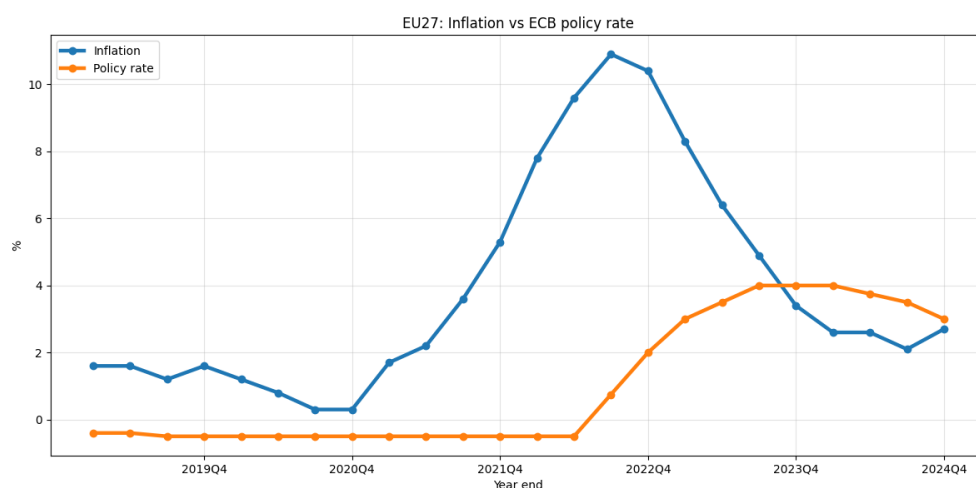


Figure 39: evolution of inflation in line with policy rates in the EU27 area.

The euro-area series shows a clear lagged policy response to the inflation cycle. Inflation rises sharply from the low inflation environment of FY2020 into FY2021 and peaks in FY2022 at 10.4%, while the ECB policy rate, denominated by the ECB as the deposit facility rate, remains unchanged for much of the build-up phase and only tightens decisively once inflation is already elevated. This sequencing is consistent with a reaction function that prioritizes medium-term inflation expectations and transmission conditions rather than contemporaneous inflation alone. It also explains why a simple contemporaneous linear regression tends to fit poorly in the euro-area case (your earlier result

$R^2 \approx 0.042$): inflation and policy rates co-move over the period, but not synchronously, because policy is deliberately implemented with lags and is influenced by broader financial stability and fragmentation considerations. The post-peak phase then shows inflation declining materially (%) while policy remains restrictive, consistent with the ECB keeping conditions tight to ensure disinflation becomes durable. To study a possible statistical relationship between inflation and policy rates, which in normal conditions is more palpable, a linear regression with interest rate as the dependent variable and inflation as the independent was run yielding a R^2 equal to 0.042, indicating that current inflation explains little of the variation in policy rates. This result is not unexpected and instead highlights the lagged, state-dependent and non-linear nature of monetary policy decision-making, particularly in the presence of disruptive situations as COVID-19 pandemic was.

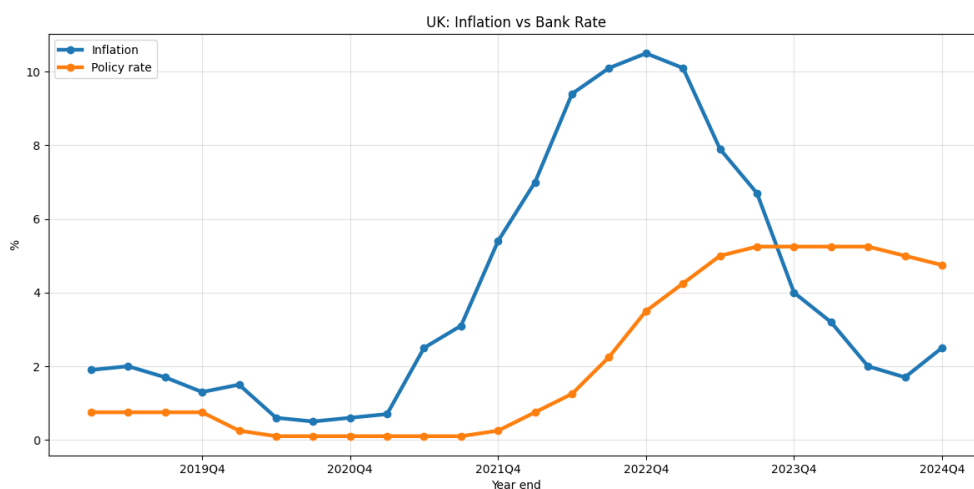


Figure 40: evolution of inflation in line with policy rates in the UK.

In the UK, quite similar situation to EU27, the inflation surge is both sharp and persistent through FY2022, peaking at around 10.5%, before easing thereafter, and the pertaining interest rate, the Official Bank Rate, increases markedly during the tightening cycle. Relative to the euro area, the policy response appears more contemporaneous with the inflation climb, which tends to improve simple co-movement measures, although the relationship still reflects lags and the fact that central banks also react to the broader local and/or regional economic situation, not only to inflation. A useful way to read the chart is that the Bank of England moves from an accommodative stance during the low-inflation pandemic period to a rapid tightening phase as inflation becomes broad-based, and then maintains restrictive conditions even as inflation declines, consistent with preventing second-round effects and ensuring inflation returns sustainably toward target. As in EU27, we run another linear regression to analyze the statistical correlation between these two variables and the result R^2 was 0.10, a slightly better fit than in EU27 but still quite low, showing that in this kind of economic scenario policy rates can lose a bit of statistical power as an independent variable vis-à-vis inflation.

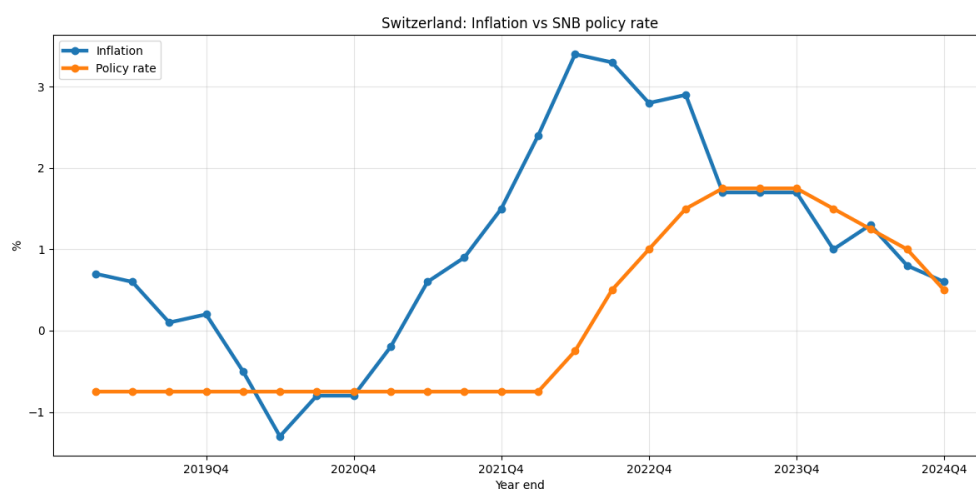


Figure 41: evolution of inflation in line with policy rates in Switzerland.

Switzerland exhibits a comparatively contained inflation cycle over the period, with inflation peaking at 2.8% in FY2022 before declining to 1.7% in FY2023 and 0.6% in FY2024. Consistent with this profile, the SNB shifted from a prolonged accommodative stance to a tightening phase beginning in 2022, raising its policy rate as inflationary pressures strengthened and then keeping policy restrictive while inflation gradually eased. In this case, a simple contemporaneous linear regression between inflation and the SNB policy rate yields a noticeably higher fit, yielding a R^2 of circa 0.26, than in the euro-area case, reflecting a closer alignment between the inflation upswing and the timing of rate adjustments over the selected period.

Note that a high R^2 does not mean policy mechanically follows inflation—rather, it indicates that the timing of the tightening cycle in Switzerland matches the inflation regime shift more closely, with less of the pronounced lag observed in the euro area. The combined picture is consistent with a smaller inflation shock and a comparatively direct policy response aimed at stabilizing inflation expectations while maintaining monetary conditions consistent with Swiss price stability.

To conclude, it is worth noting that in more “normal” macroeconomic conditions, inflation and nominal interest rates often exhibit a clearer contemporaneous association, as both variables tend to co-move with the prevailing inflation regime and expectations, an intuition also commonly used in valuation to motivate nominal discount rates. In such settings, a simple linear regression estimated over a longer and relatively stable sample can provide a reasonable summary of the average relationship. In Aswath Damodaran’s “The Little Book of Valuation – Updated version”, John Wiley & Sons, Inc., Hoboken, New Jersey, 2024, for instance, it is presented an illustrative 10-year regression-style example in which inflation and nominal rates co-move in a stable regime, yielding an R^2 of roughly 0.6; since the precise time window is not specified, this result from Prof. Damodaran is used here as a conceptual benchmark rather than a directly comparable empirical estimate.

By contrast, during the COVID period and its aftermath, the inflation–policy rate relationship becomes intrinsically harder to capture with a single contemporaneous linear fit: inflation is shaped by large, non-linear supply shocks (lockdowns, bottlenecks, and later energy/commodity shocks), while central banks respond with lags and under multiple constraints. As a result, the low R-squared values obtained for the ECB and Bank of England regressions should not be interpreted as evidence of “no relationship”, but rather as evidence that a static linear specification is poorly suited to a high-volatility regime. The Swiss case displays a closer alignment between inflation and policy-rate adjustments, which improves contemporaneous fit, but even there the regression should be viewed as a descriptive diagnostic rather than a structural model

2.1.4 Financial market volatility

In this section, we will examine how the COVID-19 shock affected financial market volatility and how changes in risk sentiment were reflected in the market valuation of European banks. The analysis relies on two market-based indicators. First, the VSTOXX index, i.e. the standard European implied-volatility index for the EURO STOXX 50, computed from real-time option prices and designed to reflect market expectations of (typically) 30-day forward-looking volatility, is used as a benchmark measure of implied volatility for the Euro Stoxx 50, and therefore as a forward-looking proxy for overall uncertainty and stress in European equity markets. Second, the STOXX Europe 600 Banks index, i.e. the index aggregating the banking institutions included in the STOXX Europe 600 index, is used to capture the performance of listed European banking equities, including most of the selected banks, such as BNP Paribas, Banco Santander, ING, BBVA, Intesa Sanpaolo, UniCredit, Barclays or Deutsche Bank. The methodology is deliberately simple and transparent: it first compares the time-series evolution of these indicators over the selected period and then uses a basic scatter plot and linear regression framework to summarize the contemporaneous relationship between volatility and bank equity performance. This approach provides an intuitive way to test whether periods of heightened uncertainty and risk aversion are associated with weaker bank index levels, before discussing the patterns observed in the data.

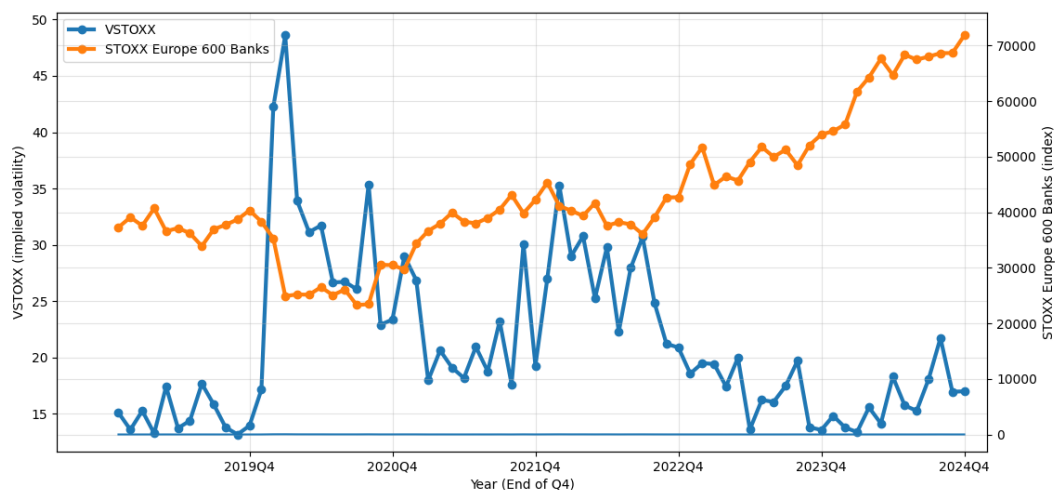


Figure 42: evolution of Market volatility vs European bank equity index (monthly)

The time series (see Figure 38) highlights a clear inverse co-movement between market uncertainty (volatility) and European bank equity performance over the sample. Volatility (VSTOXX) remains relatively low and stable pre-COVID, then spikes sharply during the first COVID shock, reaching its local maximum close to 50 points in early 2020, while the STOXX Europe 600 Banks index drops markedly over the same window, moving from roughly the low-40k points range down toward the mid-20k points range, dropping the index almost 40% in the first three months of 2020. As volatility progressively normalizes from FY2020 onward, the bank index stabilizes and then recovers, the relationship that is clearly inversely linked; renewed volatility episodes, especially between FY2020 and FY2021 coincide with periods of slower or temporarily weaker bank-index performance. From FY2023 to FY2024, volatility stays comparatively contained, mostly in the mid-teens to low-20s range, while the bank index trends strongly upward and ends the period at all-time-high levels surpassing 70k points in December 2024, consistent with improving market sentiment and lower uncertainty relative to the crisis phase.

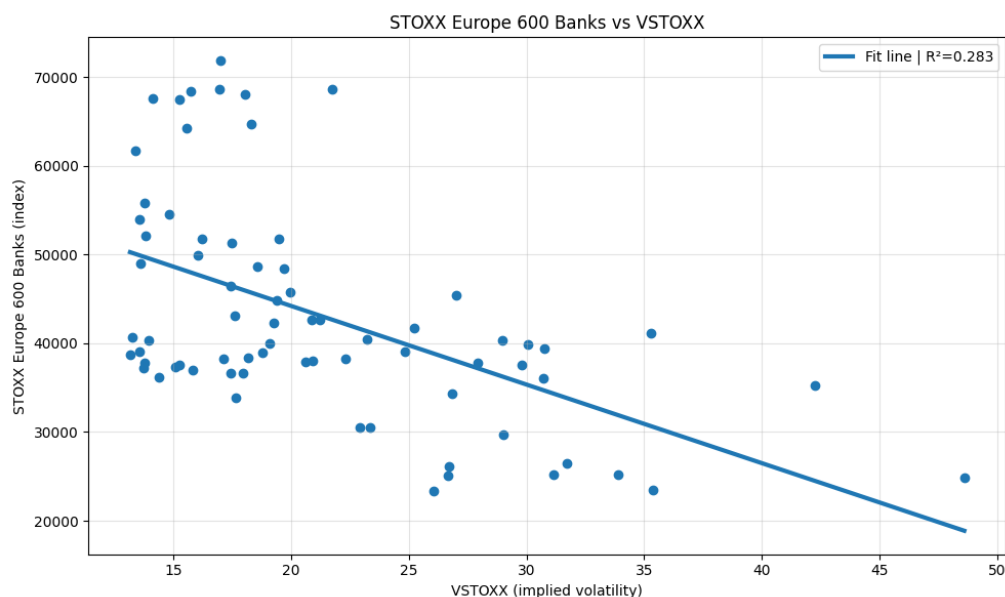


Figure 43: evolution of Market volatility vs European bank equity index (monthly)

The computed linear regression “STOXX Europe 600 Banks vs VSTOXX” in Figure 39 confirms the negative association suggested by the time-series: observations with higher implied volatility tend to coincide with lower levels of the European bank equity index. The fitted OLS line, represented by the equation $\widehat{Banks600} = 61935.1994 + -886.2628 * \widehat{VSTOXX}$, slopes downward and the regression achieves an $R^2 = 0.283$, meaning that roughly 28% of the variation in the bank index level is explained by contemporaneous changes in VSTOXX within this simple bivariate specification,. This is a materially stronger fit than the inflation–policy-rate regressions discussed earlier, and it supports the interpretation that market-wide uncertainty is an important (though not exclusive) driver of bank equity valuations during the period. At the same time, the dispersion of points around the line indicates that other factors, such as the macro-outlook, interest-rate expectations, and bank-specific fundamentals, also contribute meaningfully to bank equity performance, so the regression is best viewed as a concise way to summarize how the two variables move together, rather than as a full model, or the main variable, that explains bank equity performance on its own, which of course it is not.

2.2 Banking sector response

The COVID-19 shock forced European banks, alongside policy makers, to respond on two fronts at once: safeguarding the continuity of essential financial services under severe operational constraints, while cushioning the real economy against an abrupt collapse in activity. In the short run, banks had to maintain payment and lending infrastructures, rapidly shift large parts of their workforce to remote operations, and reorganize branch networks, which in a lot of cases ended up in the closure of a non-negligible number and client servicing in line with public-health restrictions. In parallel, they implemented broad customer-relief measures, often in coordination with public schemes, such as payment deferrals, emergency credit lines, and the distribution of state-guaranteed liquidity to firms and households, as it was elucidated in the public banking of this thesis. From a prudential perspective, supervisors prioritized balance-sheet resilience to avoid a pro-cyclical credit squeeze; in March 2020, the ECB recommended that significant EU banks suspend dividends in 2020 and 2021, for FY2019 and FY2020 respectively, and refrain from share buybacks to preserve loss-absorbing capacity and sustain lending to households and SMEs. This stance was prolonged in December 2020, when the ECB called for “extreme prudence” and asked banks to refrain from or strictly limit dividends and buybacks until 30 September 2021. In practice, large banks aligned quickly, for example ING in 2020 removed its proposed final FY2019 dividend from the Annual General Meeting agenda and indicated it did not expect an interim dividend from FY2020 earnings, while UniCredit in 2020 put on hold its FY2019 dividend proposal (0.63€/share) and a planned share buyback (up to €467m) following the ECB recommendation.

We can say therefore that the crisis acted both as a stress test of operational resilience and, somehow, as an accelerator of structural trends, most notably, the rapid shift of customers toward digital channels and the scaling of end-to-end digital banking processes and the surge of important e-banking institutions in Europe.

2.2.1 Strategic adjustments adopted by the banking in Europe

Once COVID-19 pandemic sparked, European banks’ role was very clear from a dual-mandate perspective; first, operate as critical financial infrastructure, through the continuation of their common services offered to civilians, workers and households, i.e. current and deposit accounts, payment channels, credit and debit cards, credit lines, etc., while, second, also acting as a shock absorber for firms, e.g., by still granting facilities to small, medium and big corporations to finance their daily operations and most immediate debt, i.e. working capital, needed to keep their activity going. The COVID-19 emergency therefore triggered a set of strategic adjustments that were partly internal, such as how banks organized operations and risk management under this unprecedented context (at least during the modern era of banking, and partly external, i.e. how banks interacted with public schemes, supervisors, and central bank facilities. Across European banking groups, a common paradigm aiming for stabilization emerged: ensure business continuity and customer access to core services, cushion solvent borrowers through temporary relief measures and guaranteed lending channels and preserve balance-sheet resilience to avoid a self-reinforcing tightening of credit.

A first and immediate adjustment concerned operational continuity under lockdowns and mobility restrictions was adopted by main banking institutions, not comprehending business-continuity arrangements at scale, including remote working (which nowadays has been commoditized as any other benefit for workers both in the public and private sector), split-team organization for critical functions, reinforced IT connectivity, and adapted branch operations with health safeguards—so that core services could continue despite severe constraints. In all annual reports of the selected banks,

the speech was quite common among them: this period was a clear stress test of operational resilience, where technology readiness and process flexibility became key constraints for service delivery.

A second pillar of the response was the rapid deployment of borrower relief and liquidity support, often coordinated with government programmes, as extensively inquired in chapter 1's section regarding public banking. In practice, this took three main forms; first, banks implemented (or participated in) payment holidays/loan moratoria, i.e. temporary arrangements allowing households and firms to defer, suspend, or reduce payments for a limited period, with the sole objective of smoothing short-term liquidity shocks during lockdowns, preventing otherwise prime borrowers from falling into non-payment situations. Second, banks acted as distribution channels for state-guaranteed lending, particularly to SMEs, to preserve the financing of short-term debt, like working capital, to maintain activity during lockdowns, even if for some of them could not resist the strike of the pandemic and were forced to stop operations and shutdown everything or put FTEs on furlough, i.e. mandatory, temporary leave of absence from work which might infer for FTEs unpaid or partially paid wages, depending on the jurisdiction. Third, many banks created fast-track internal processes to handle an unprecedented surge in customer requests linked to payment deferrals and emergency credit, often via dedicated COVID support teams/hotlines, simplified documentation and accelerated workflows for guaranteed lending. A tangible example is ING, which stated in its Q1 2020 analyst presentation that it had processed and approved “over 100,000 customer requests related to payment holidays and government guarantee schemes”, illustrating both the scale of demand and the need for rapid operational reconfiguration. At EU level, this operational scaling was supported by prudential clarification: the EBA Guidelines on legislative and non-legislative moratoria (EBA/GL/2020/02) explicitly aimed to define conditions under which broad-based moratoria, if the criteria are met, “help avoid the classification” of exposures as forborne or defaulted under distressed restructuring, reducing the risk that mass relief would mechanically trigger adverse credit classification and enabling banks to grant deferrals more consistently. This linkage is also visible in banks' own reporting: Banco Santander notes in its Q4 2020 financial report that, for exposures subject to moratoria, the Group takes into account the EBA indications, and that “these moratoria are not considered to be automatic indicators” of forbearance classification; evidence that EBA guidance directly informed how large banks treated moratoria for reporting and risk purposes.

To assess whether these measures taken by banking institutions and policy makers coincided with an aggregate contraction in credit intermediation, the following two figures report euro-area bank lending to households and non-financial corporations (NFCs) using the ECB Data Portal “Balance Sheet Items” (BSI) dataset. The series includes bank lending through ECB's asset category A20, i.e. loans, from more than 250 MFIs, i.e. monetary financial institutions, classic banking institutions, aggregating all maturities and all currencies excluding central bank lending.

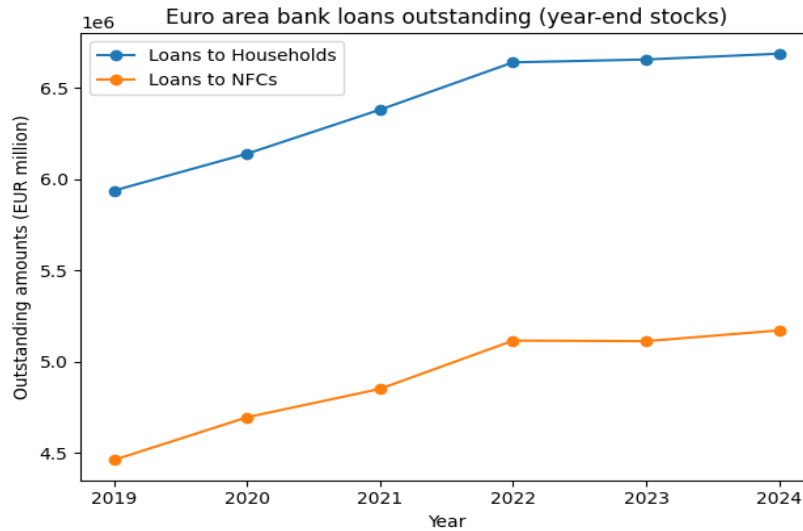


Figure 44: evolution of Euro Area bank loans outstanding during our selected period.

As previously mentioned, the figure above reports end-of-year outstanding amounts (stocks) shown at annual frequency by taking the December 31 observation of each year. Over the period between 2019 and 2022, the stock of loans rises steadily for both segments: household loans increase from roughly 5.9 trillion euros to more than 6.6 trillion, while NFC loans rise from about 4.5 trillion euros to roughly 5.1. From 2023 onward, both series largely flatten, with only modest additional growth into 2024. This stock pattern does not suggest an aggregate contraction of bank credit during the acute pandemic phase; instead, it is consistent with continued credit intermediation through 2020–2022, followed by stabilization thereafter.

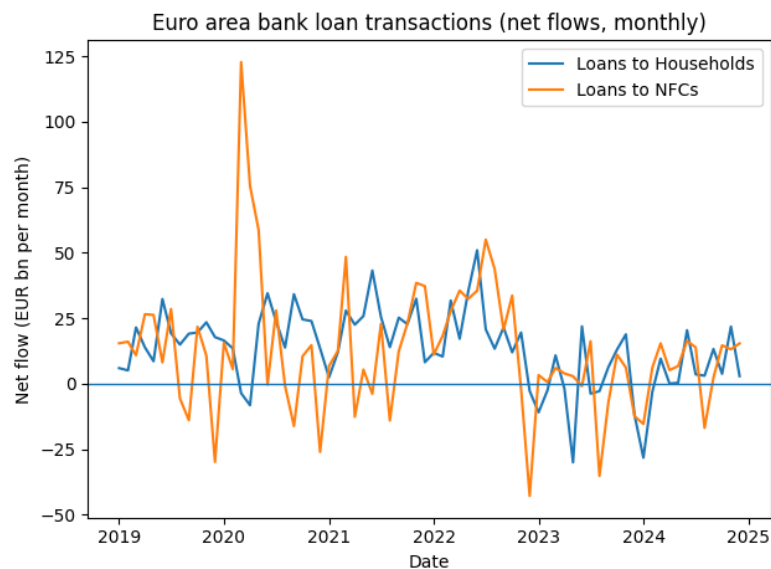


Figure 45: monthly evolution of Euro Area bank loan net flows during our selected period.

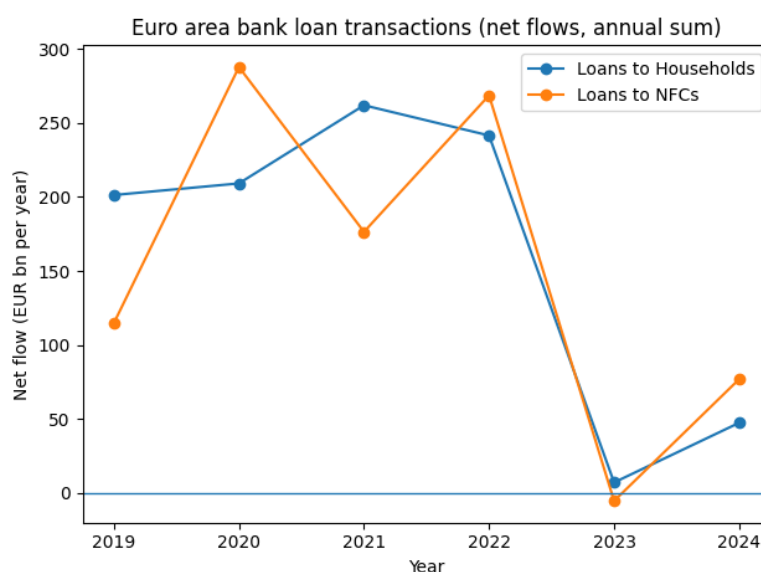


Figure 46: annual evolution of Euro Area loan net flows during our selected period.

Figures 41 and 42 approximate net new lending during the period, derived from changes in outstanding loan stocks after removing non-transaction effects, such as reclassifications, valuation/exchange-rate adjustments and loan write-offs/write-downs. Read jointly, the charts show that net lending stayed clearly positive between 2020 and 2022; household net flows remain in the order of ~200–260 billion euros per year, while NFC flows are more volatile but also strongly positive, moving approximately between 175 and 290 billion euros per year. Figure 41 reveals why NFCs swing more: at the onset of COVID there is a pronounced spike in 2020 with more than 120 billion euros in net flows in March, scenario that was consistent with precautionary corporate liquidity demand and credit line drawdowns, after which monthly flows revert toward more typical ranges. The key regime shift occurs in 2023, when both series collapse toward zero; household annual flows fall to just a bit more than 7 billion euros and NFC annual flows turn indeed negative amounting to subtly more than –5 billion euros. before the rebound in 2024, ending in circa 47 billion euros for households and almost 77 billion euros for NFCs. This 2023 break is also consistent with the ECB Bank Lending Survey, where banks reported an exceptionally sharp fall in firms’ loan demand from 2022 EOY to late 2023, the largest net decline since the global financial crisis, reinforcing the interpretation that the major slowdown in euro-area net credit creation occurred after the acute pandemic phase rather than during it.

2.2.2 Acceleration of digital banking solutions and e-banks

COVID-19 accelerated digital banking through a combined demand shock; customers actively avoiding physical channels, and supply constraints; banks needing to deliver end-to-end services under mobility restrictions. A simple and robust way to evidence the demand-side shift is Eurostat’s indicator “Individuals using the internet for internet banking”, metric that measures the percentage of individuals aged 16–74 who used the internet for banking daily operations at least once in the previous three months over a sample of 160,000 EU households and 200,000 individuals. The term “internet banking” in Eurostat’s definition covers both transactional uses, e.g., making electronic payments/transfers, and non-transactional uses, e.g., checking account information, routine banking tasks performed via a bank’s online interface, etc.

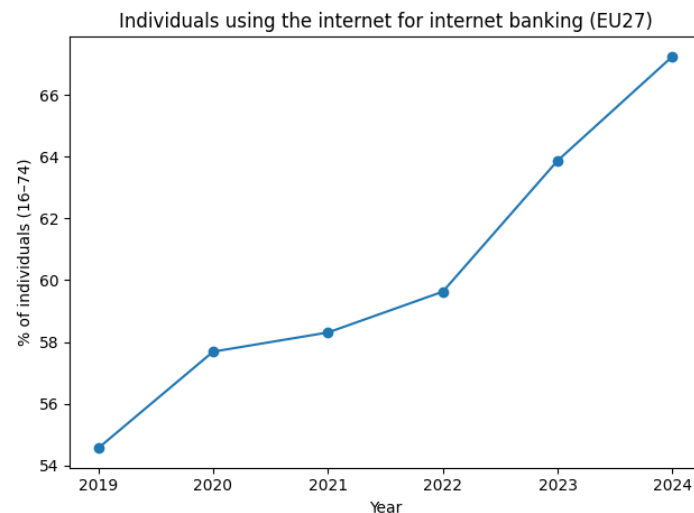


Figure 47: annual evolution of Euro Area bank loans outstanding during our selected period.

The figure above should be read as a population-level adoption proxy: it effectively documents the diffusion of online banking behavior among consumers. The relevance for this thesis is that the pandemic appears to have compressed adoption timelines as online banking shifted from a convenience channel to a default access mode for many individuals, supporting the view that COVID-19 acted more as an accelerator than an origin of digital banking, since prior to it there were already players in the sector.

On the supply side, annual reports from our selected banks describe how this change in customer behavior translated into concrete operational and strategic responses, typically focused on expanding service across both digital and physical channels, moving key customer processes online end-to-end, and strengthening operational resilience and cybersecurity as digital activity and transaction volumes increased. Showcasing tangible examples of what said from our cluster of banks; Deutsche Bank provides a clear example of the first two responses: in 2020 it reports that the number of users and logins for its German private banking mobile app increased by 35%, consistent with a fast migration of routine interactions to mobile channels. At the same time, Deutsche Bank describes an explicit omni-channel distribution model combining branches, call centers, self-service terminals, advisory centers, and a digital platform with online/mobile banking and self-service, illustrating how the German banking positioned digital as a complement (and, during COVID, often a substitute) to physical delivery. The acceleration narrative also extended to infrastructure choices: Deutsche Bank highlights its multi-year partnership with Google Cloud as a step toward modernizing IT infrastructure and expanding digital offerings, reflecting how the crisis period reinforced, in a rather disruptive way, the strategic case for cloud migration and scalable architectures.

Another tangible example of digitization of banking services is UBS, which illustrates how digitisation moved beyond basic servicing into end-to-end product origination during the pandemic. UBS reports that in June 2020 it launched “key4”, a digital mortgage platform for private clients preferring digital channels, and that its UBS Atrium mortgage platform, for corporate/institutional clients, had already serviced more than 1.8 billion Swiss franc of credit volume, evidence that digital platforms were used to deliver complete financing journeys, not only to provide account access. UBS also frames these platforms within a broader “open banking” approach, onboarding lead-generation partners (e.g., brokers, real estate agents, B2C platforms) and positioning key4 and Atrium as central elements of its Swiss digital strategy.

BNP Paribas' disclosures on annual reports provide as well tangible examples of how banks digitized processes and reshaped customer interaction tools in response to COVID-era usage shifts. In its 2020 integrated reporting, BNP Paribas notes that the crisis accelerated changes in customer behavior, including growth in contactless payments, and that the group implemented "100% digital or simplified processes", explicitly citing, for instance, e-signature (for companies at BNP Paribas Leasing Solutions and French Retail Banking) while equipping advisors to manage customer relations remotely. The pandemic-driven channel shift to digital also appears clearly in Santander's reporting, particularly on their UK division reports stating that, during 2020, customer engagement through contact centers and digital channels increased sharply, with digital financial transactions up 18% over the year, while branch counter transactions fell 18% and branch ATM transactions fell 55%; the bank links this directly to adapting its operating model and increasing remote banking capacity. This type of evidence is useful for interpreting Figure 43: rising population-level "internet banking" usage plausibly corresponds to banks experiencing materially higher digital transaction volumes and reallocating capacity away from in-person servicing, in this particular situation evidently sped up by COVID-19 lockdowns. Importantly, the digital surge came along with a pivotal control challenge: expanding remote access and increasing digital volumes can raise exposure to ICT disruptions, fraud, and cyber threats, making operational resilience and cybersecurity structural companions to digital adoption rather than temporary crisis measures. In respect of this last topic, UBS explicitly states in their Annual Report that during 2020 it continuously enhanced monitoring for COVID-19-related cyber threats and communicated guidance to employees on staying "cybersafe" while working remotely, noting that controls were effective and no significant cyber incidents affected the firm in 2020. Another comparable COVID-era pattern is ascertained by Intesa Sanpaolo in its H1 2020 report, where the Italian group explicitly notes that it expanded contract dematerialization and remote signature processes, with related investments to enhance channels for remote customer contact, in the specific call centers and digital apps, and strengthen IT security, including fraud prevention, i.e., not only more digital servicing, but also the governance and controls required to scale it safely. The same direction is reflected in its 2020 communications on "customer digitalization," which highlight a large multichannel customer base and millions of app users as digital engagement became central during the pandemic period and surge of their 2023 rebranded e-bank isybank, which up to date hoards more than 900,000 open current accounts and circa 500,000 active users.

To conclude with the section and chapter, it is worth noting the rise of e-banks in Europe, reaching huge mass scale during our selected period and hitting a status up to par with some of the main classic-banking institutions. Starting with fast-growing neobank in Europe, Revolut illustrates clearly the steepest trajectory among fellow European e-banks: its 2023 annual report states that its customer base grew from 26.2 million to 38.0 million during 2023, and its 2024 annual report reports 52.5 million retail customers at end-2024, growth accompanied by strong evolution of their app and web services such as expanded Savings coverage, rollout of local IBANs in multiple countries (including Italy), loan facilities up to 50,000 euros, a solid and easily comprehensive trading platform, the launch of RevPoints (a pan-European debit-card loyalty programme), and new add-ons like eSIMs. N26 follows a more "mobile-first core bank" path: it reported reaching 8 million customers in its FY2021 results disclosure, while its "Spaces" functionality (sub-accounts) evolved into more practical money-management tooling through features enabling direct debits and transfers for bills/rent/subscriptions; a good type of remote-first functionality that fits a post-COVID channel mix. bunq similarly reports rapid scaling: its consolidated annual report for 2023 explicitly thanks "over 11 million bunq users," and its communications tie growth to a proposition aimed at internationally mobile users, often emphasizing digital convenience and savings features to attract deposits. Finally, Klarna, which IPO'd on the NYSE on September 2025, opting for a quite different business model than the previous players with its buy-now-pay-later scheme and benefiting, as reported in its 2023 annual report, from a network of around 150 million global consumers, framing its offering as an AI-powered payment and shopping service integrated into huge global e-commerce retailers such as IKEA or H&M.

3. Financial performance and profitability analysis in major markets

This chapter develops a comparative assessment of bank profitability across our cluster of banks over the selected period we chose, i.e. FY2019 through FY2024, which spans the COVID-19 shock, the subsequent recovery, and the interest-rate repricing cycle. The objective is not only to rank institutions by performance, but to characterize the drivers of performance by disentangling the relative roles of margin generation, operating efficiency, and capital/risk intensity across business models and jurisdictions. To that end, the analysis is conducted at consolidated group level and combines complementary profitability metrics capturing various viewpoints: shareholder return view, through the return on tangible equity, i.e., RoTE (which banks often used rather than classic ROE since it does take into account a common equity base that excludes goodwill and other intangibles), balance-sheet profitability view, through ROA (metric that we will see it is very low among all institutions due to their balance sheet nature), risk-adjusted performance view, through the risk-adjusted ROA based on RWAs (metric that we will see upcoming it is more explicative to assess the return of banks' assets), from an operating efficiency view, through the cost-to-income, and intermediation profitability, through the net interest margin. Using this multi-metric approach reduces reliance on any single ratio that may be mechanically affected by leverage, balance-sheet structure, or regulatory capital definitions. The profitability analysis will be accompanied by an examination of the main challenges regarding revenues and cost management practices that our selected banks faced during the pandemic and the subsequent aftermath period.

In addition to this, an analysis on why some of our selected banking institutions yielded excessively high profits throughout the whole FY2019-FY2024 period will be as well carried out, having its basis on the extended profitability analysis in the first place.

3.1 Comparative financial performance analysis

In the following two sections, as previously anticipated, it will be elucidated a benchmarking of the sample banks' profitability over FY2019–FY2024 using the pre-defined set of complementary indicators in the chapter's introductory paragraph across multiple perspectives. It then develops a brief study on how banks addressed the pandemic shock, on both revenue and cost sides, and how these adjustments contributed to stabilizing, and in most cases improving, profitability over the subsequent recovery.

3.1.1 Profitability during COVID-19

Prior to starting with the presentation of the profitability results for all banks, it is worth doing a presentation of all definitions of the metrics we chose for the analysis. Starting with the return on tangible equity, we already define the main variation of this metric with the classic return on equity, and it is the sole consideration of tangible common equity, which excludes goodwill and other intangibles. The decision of banks to adopt RoTE is essentially to improve comparability among banks with different M&A histories, since goodwill is an item impacting both assets and equity side of the balance sheet that arises from a merger or an acquisition made by an institution at issue, not directly involved to tangible involved with book value equity that shareholders have contributed in the first place, so RoTE clearly benefits shareholders by imposing an inherently smaller amount of equity, i.e. a smaller denominator.

Regarding banks' profitability based on their on-BS assets, it is quite misleading to base this on the classic return on assets ratio, due to the clear fact that all, with no exception, of these banking institutions have very heavy balance sheets, implicating a huge amount of assets, which are basically dominated by loans and advances granted to clients as extensively described in the first chapter. In fact, most of the ROAs among our cluster of banks oscillate between the range of 0.2-0.4% to lower 3%. To address this limitation, a further metric is introduced to capture profitability relative to a risk-

driven measure of assets; instead of considering all on-BS assets of each bank, which do not distinguish riskiness and regulatory capital intensity among assets, the study is adapted to the risk-adjusted ROA, which considers the risk-adjusted assets (RWAs) of each institution. RWAs represent the bank's total risk-weighted exposure amount under the prudential framework, obtained by applying regulatory risk weights to credit, market, and operational risk exposures, plus other relevant adjustment, and are therefore the main standardized proxy for the risk intensity of the balance sheet. To explain how RWAs work in simple words, if a bank holds X million euros in government bonds, that X amount of bonds (related to their on-BS current book value) will have a regulatory risk weight rather low, since this kind of securities are considered to have the lowest risk, and in most cases, to be risk-free. So, if the associated to that government bond is, for example, 0.001%, the RWA for that on-BS item would be $X \cdot 0.00001$. This logic is applied to all on-BS items by applying its respective regulatory risk weight until compute the total amount of RWAs of the institution at issue.

Continuing, we have one of the most diffused metrics to describe banking profitability and operating efficiency, the cost-to-income ratio. This ratio is defined as the operating expenses over operating income through a certain period of time, in our case it will be the annual, full year cost-to-income ratio of all our banking institutions.

To conclude the preliminary definitions, we define lastly the net interest margin. This measure is defined as the net interest income, which corresponds to interest income earned on loans and other interest-bearing assets minus interest paid on deposits, savings account, and other similar customer holdings, divided by the average interest-bearing assets, mainly loans and advances to customers, debt securities, cash and balances at central banks earning interest, etc.

To keep the discussion clear and readable, the results achieved are presented in two samples; the first one is composed of the main continental banks from our selection, comprehending Deutsche Bank, ING, BNP Paribas, Crédit Agricole, Société Générale, UBS, UniCredit and Intesa Sanpaolo. The second sample is formed by the British, Spaniards and specialists' continental institutions, i.e. Barclays, HSBC, Santander, BBVA, CaixaBank, Mediobanca, Rothschild & Co, and Van Lanschot Kempen.

Starting with the RoTE, all results pertaining to this metric for both our pre-defined bank samples are shown in the figures below:

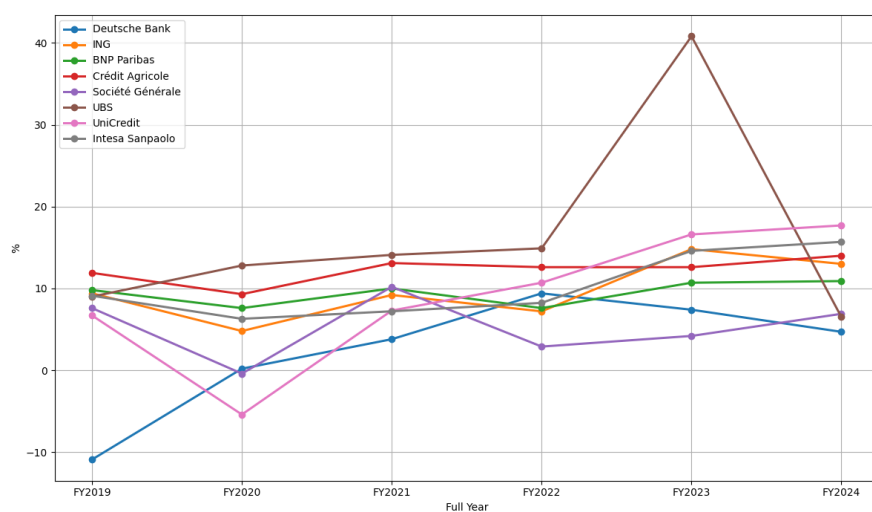


Figure 48: RoTE evolution of the first cluster of banks during our selected period.

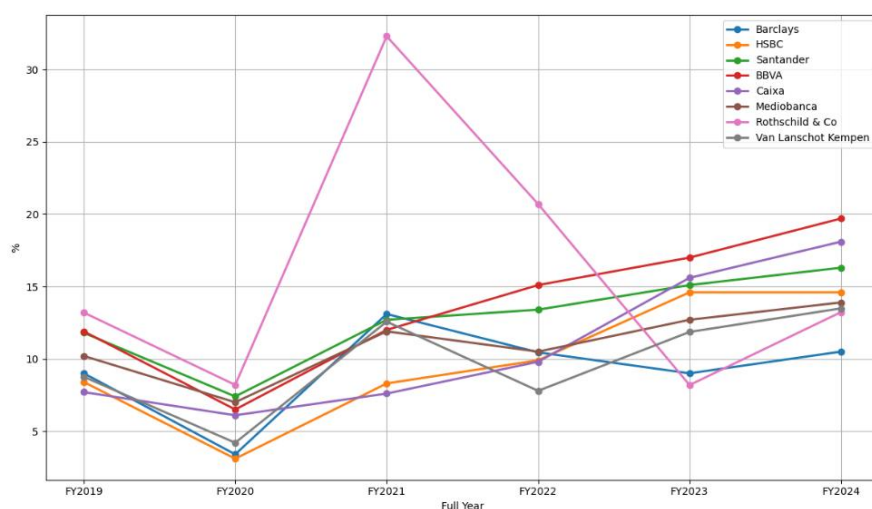


Figure 49: RoTE evolution of the second cluster of banks during our selected period.

Across the first cluster (see Figure 43), RoTE follows a clear shock–rebound pattern throughout our selected period, strongly linked to what happened timely during each year: the instant COVID-related dip in FY2020, recovery in FY2021–FY2022, and a broad uplift in FY2023–FY2024 as higher rates supported intermediation profitability. Within this group, Italian banks stand out for the strongest improvement and highest end-period returns, with UniCredit rising from circa 7% in FY2019 to almost 18% in FY2024, and Intesa showing a significant uptrend from 9% to roughly 16%. Biggest French banks, i.e. BNP and CA, remain comparatively stable in the 10–14% range by FY2024, with BNP almost reaching 11%, and Crédit Agricole 14.0%, while Société Générale recovers from weak pandemic profitability to 7% by FY2024. Within this sample, there are two clear outliers: Deutsche Bank’s FY2019 RoTE with –10.9%, reflecting a thorough transformation among all DB’s business lines with sizeable restructuring and severance expenses, in addition to (under)valuation adjustments related to deferred tax assets, which significantly eroded the German group’s net income at the end of the fiscal year. The other outlier is UBS’s FY2023 RoTE reaching a staggering 40.8%, which is primarily led by a purchase-accounting-driven spike related to the Credit Suisse acquisition, in particular due to a significant bargain purchase gain (IFRS 3) of circa 25.8 billion euros that was recognized in the group’s consolidated P&L boosting ultimately FY2023 net income (with the transaction completed on June 12 2023). UBS’ RoTE then followed a sharp normalization to 6.5% in FY2024 as one-offs faded and integration dynamics for Credit Suisse took over.

In the second cluster, dispersion is wider and the rate-cycle repricing effect is especially visible in Spain. UK banks recover from FY2020 weakness and stabilize at mid-to-high single or low double digits by FY2024 with Barclays reaching 10.5% and HSBC 15%, while Iberian banks deliver the strongest end-period profitability in the whole sample, with Santander surpassing 16%, BBVA almost touching 20%, and CaixaBank at 18% in FY2024, consistent with strong NII uplift and improving operating leverage. Specialist institutions display structurally different dynamics: Van Lanschot Kempen remains in the low-to-mid teens by FY2024 with 13.5%, whereas Rothschild & Co shows pronounced cycle sensitivity, with an exceptional RoTE peak of approximately 32% in FY2021 driven by a record advisory year (with revenues amounting to 1.95 billion euros vs 1.15 in FY2020) and exceptional merchant banking investment performance (with revenues increasing to 398 million euros vs 148 in FY2020) which drove net income of the group from €173m to €766m, translated into a RoTE jump from 8.8% to 32.3%. Then, normalization arrived for Rothschild, ending up at 13.2% in FY2024. Mediobanca maintains a steadier upward path into the low-to-mid teens by FY2024 almost 14%, though comparisons remain subject to its fiscal year ending 30 June.

Continuing with the profitability analysis, now we will focus on the risk-adjusted return on assets (RAROA), which, as previously stated, provides a clearer measure of the profitability per unit of risk-weighted exposure, capturing the return generated on the bank's risk-adjusted asset base rather than on total on-BS asset, that for banks is usually a very high amount. For clarity, as done in the RoTE analysis, we will split our selected banks into the same two clusters. As follows, the results obtained:

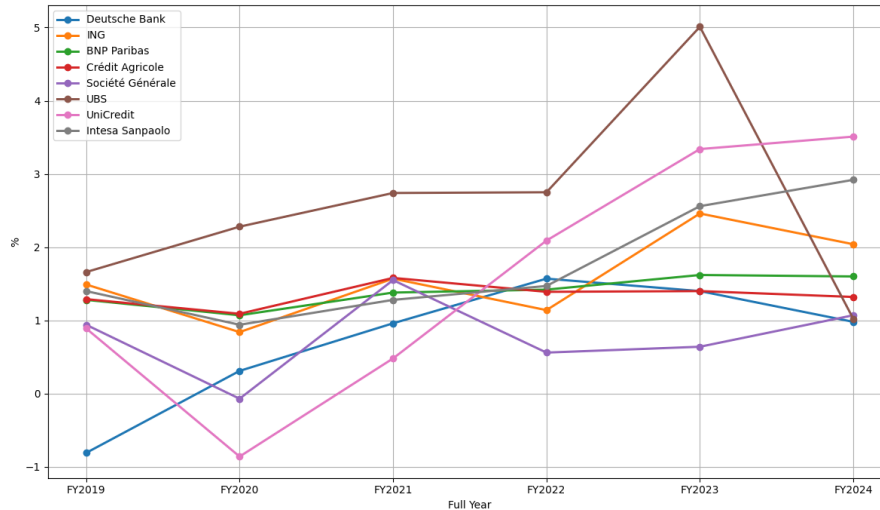


Figure 50: RAROA evolution of the first cluster of banks during our selected period.

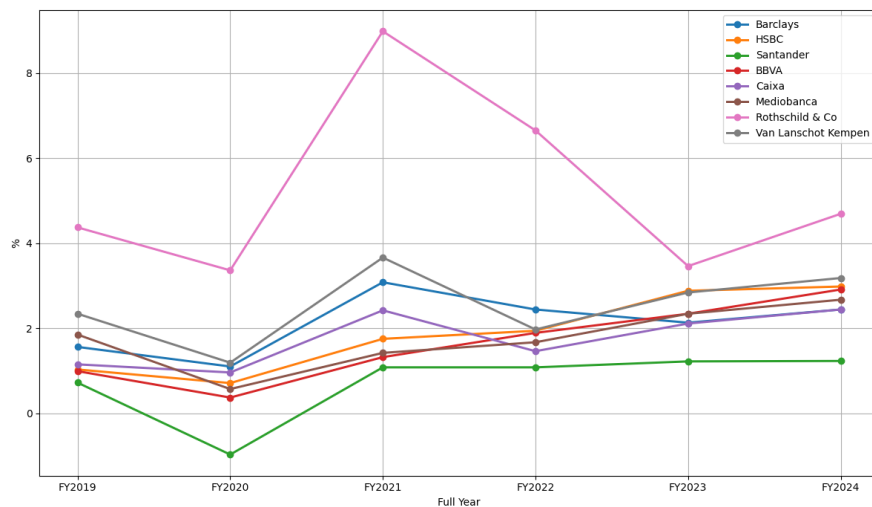


Figure 51: RAROA evolution of the second cluster of banks during our selected period.

The very first thing that caught the eye, but still on quite a logical basis, is the trend similarity of both Figure 45 and 46 with the graphs pertaining to the RoTE analysis. It is palpable that the major turning points are shared: a pronounced profitability dive in FY2020, a normalization phase in the following two years and a clear acceleration in FY2023 and FY2024. The key difference of this trend similarity between this metrics is conceptual rather than visual; RoTE reflects shareholder returns on tangible equity, RAROA shows that the same rebound is also observable per unit of regulatory risk, i.e. per

unit of risk-weighted exposure as measured by RWAs, indicating that the recovery was not purely a capital-efficiency story but also a genuine improvement in risk-adjusted earnings capacity.

Consistent with this pattern, several banks move close to, or even below, zero in FY2020, before a broad-based recovery and a marked step-up in FY2023–FY2024. By FY2024, most universal banks cluster in a relatively tight band of roughly 0.9% to slightly higher than 3.5%, with UniCredit leading the large-bank set at 3.51%, reflecting one of the strongest rebounds (from –0.86% in FY2020 to 3.51% in FY2024). Other high FY2024 performers include HSBC, Intesa and BBVA, ending at 2.98%, 2.92% and 2.91%, respectively, whereas some diversified French peers remain more moderate, e.g., BNP Paribas ended at approximately 1.60%). At the lower end, Deutsche Bank (0.98%) and Société Générale (1.07%) exhibit weaker risk-adjusted profitability, consistent with lower earnings intensity, business-mix effects and transformation / restructuring charges as it was for Deutsche Bank. Finally, two observations should be treated as non-comparable outliers rather than steady-state performance: UBS FY2023 RAROA of 5.01% is inflated by acquisition-related effects of UBS, especially on the net income side as we explicitly stated in and normalizes to 1.02% in FY2024, while Rothschild & Co FY2021 RAROA of 8.98% reflects peak-cycle advisory/merchant banking profitability, same driver for its surprisingly high RoTE, and remains structurally higher than universal banks even after normalization, ending FY2024 almost at 4.7%. Overall, the RAROA results reinforce the RoTE evidence: the post-COVID rebound is broad-based, but the strongest end-period outcomes remain concentrated among Italian and Iberian banks and capital-light specialist models.

Moving forward with the analysis, we analyze now a crucial profitability index that simultaneously captures the bank's operating efficiency, namely the cost-to-income ratio. Below are the results obtained for both our bank clusters:

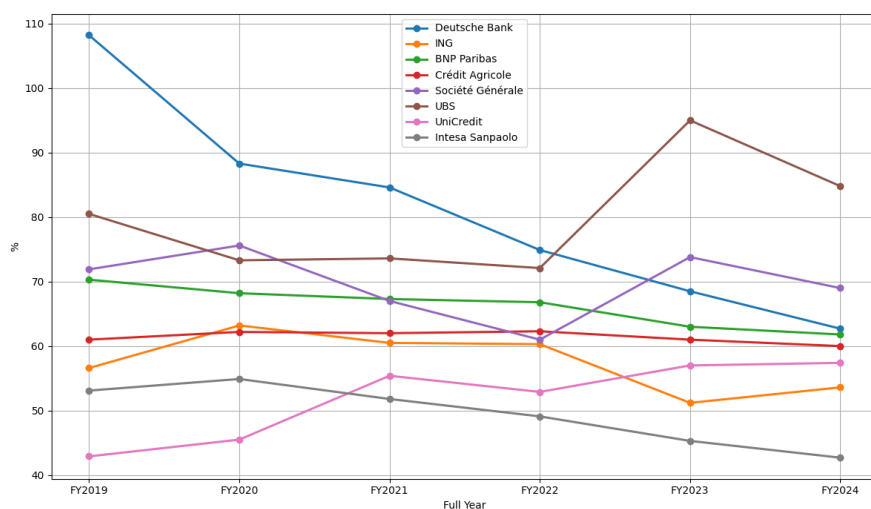


Figure 52: Cost-to-income ratio evolution of the first cluster of banks during our selected period.

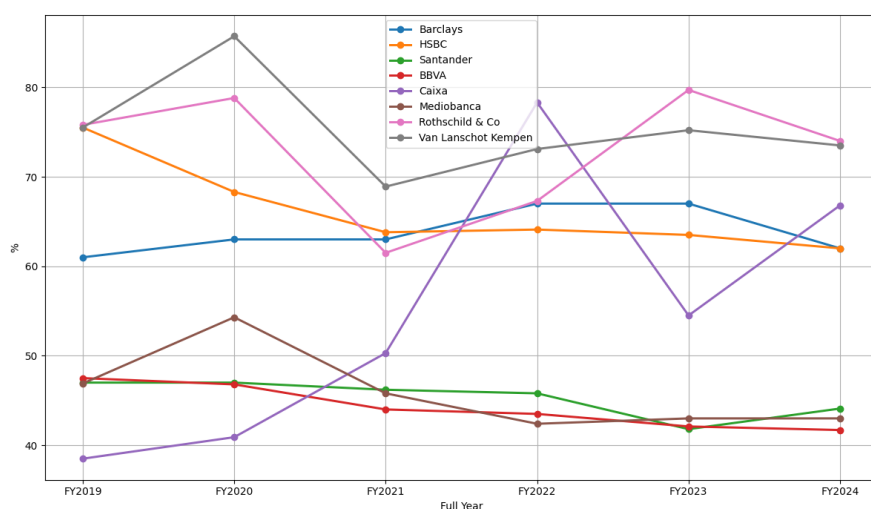


Figure 53: Cost-to-income evolution of the second cluster of banks during our selected period.

At aggregate level, the cost-to-income series points out at first sight that cross-bank dynamics are relatively dispersed over the sample period; e.g., in FY2020, when the pandemic hit, some institutions experienced a deterioration in C/I while others improved, indicating heterogeneous degrees of operating leverage and cost flexibility in response to the initial COVID shock, that is differences in how quickly revenues contracted relative to banks' ability to contain operating expenses. The cross-bank aggregated average was around 63.3% in FY2019 and 63.5% in FY2020, before compressing to roughly 60.4% in FY2021 and reaching about 59.9% by FY2024. This pattern is consistent with operating leverage: revenues fell abruptly in 2020 while costs were comparatively sticky, whereas the post-COVID income recovery (and later the rate-cycle uplift) allowed banks to improve efficiency without proportionate cost growth.

In our first cluster of banks, the most visible structural adjustment is Deutsche Bank, whose C/I falls from 108.2% in FY2019, in tune with the negative profitability metrics reported due to heavy transformation and restructuring charges the German group incurred that year, to 62.7% (FY2024), a reduction of roughly 45.5 percentage points, consistent with multi-year restructuring and cost programmes combined with revenue normalization. French universal banks show a more stable, mid-60s trajectory, with BNP Paribas compressing from 70.3% to 61.8% over the whole selected period, and Cr dit Agricole remaining tightly bounded around the low-60s. On the other hand, Soci t  G n rale is more volatile, moving from 75.6% in FY2020 to 69.0% in FY2024, with a temporary deterioration in FY2023 rising to a C/I equal to almost 74%. In Italy, Intesa reaches one of the lowest ratios in the whole sample by FY2024 with 42.7%, down from 53.1% in FY2019. By contrast, UBS displays an atypical efficiency path over FY2023–FY2024 declining from 95.0% to circa 85%, which is clearly heavily influenced by the Credit Suisse integration and related restructuring/integration expenses, rather than as a steady-state indicator of operating efficiency.

Regarding the second cluster, UK banks converged toward the low-60s by FY2024 with both Barclays and HSBC at around 62.0%, indicating a relatively stable cost base combined with recovery in income. Iberian banks, except CaixaBank, displayed the strongest structural efficiency in this half: BBVA improves steadily from 47.5% to 41.7%, while Santander moves from 47.0% to 44.1% with a trough in FY2023 to roughly 42%. Specialist institutions remain structurally higher and more cycle-sensitive: Van Lanschot Kempen stays in the mid-70s–mid-80s band, peaking at 85.7% in FY2020, and Rothschild fluctuates widely; from 61.5% in FY2021 to 79.7% in FY2023), reflecting the operating leverage of advisory-led revenues. CaixaBank exhibits the most event-driven cost-to-income profile in the sample, with pronounced temporary distortions around the Bankia integration: the headline ratio spikes when sizeable extraordinary/integration costs are reported, amounting to

78.3% in FY2021, and then normalizes sharply as these one-offs fade, ultimately improving to 40.9% in FY2023 and 38.5% in FY2024 as income growth outpaces (operating) expenses related to Bankia integration.

And, to conclude with the profitability metrics analysis, we will focus now on the net interest margin. In this analysis, banks within our sample disclose the net interest income directly, and the corresponding average interest-bearing (earning) asset base without calculating explicit the net interest margin. Despite this, in all cases the NIM, that is the NII divided by average interest-bearing assets, was possible to compute manually consistently as the inputs were clearly given. Below are the results obtained for both bank clusters:

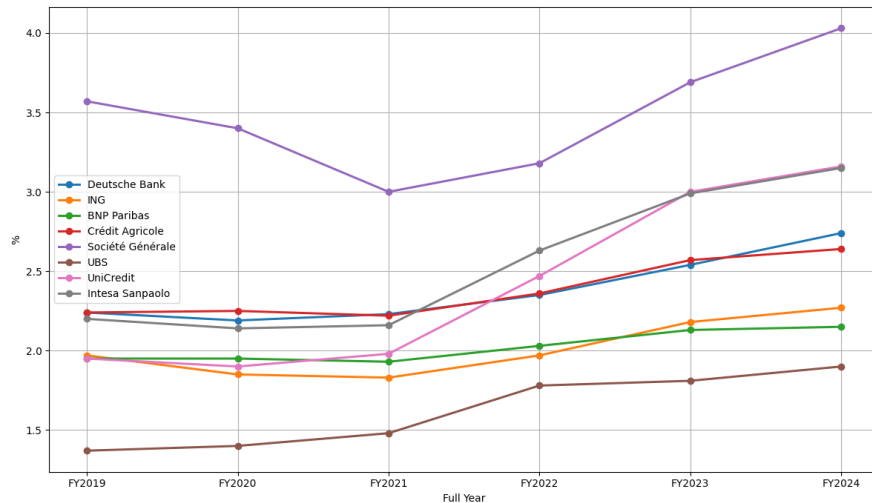


Figure 54: Net interest margin evolution of the first cluster of banks during our selected period.

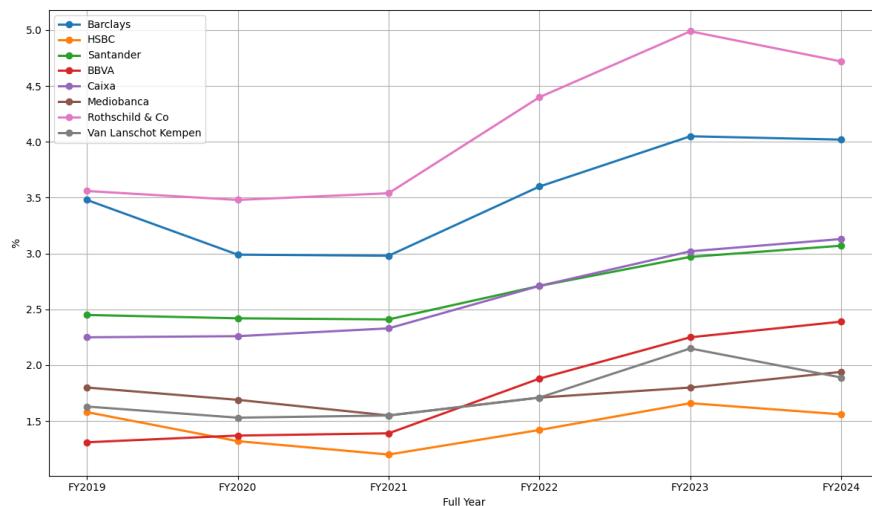


Figure 55: Net interest margin evolution of the second cluster of banks during our selected period.

Net interest margin displays a highly consistent macro pattern across the sample: a compression/flat phase around FY2020–FY2021, that is at the very start of the pandemic with it, followed by a material uplift from FY2022 onward, reflecting the post-lockdown tightening cycle and faster repricing of asset yields relative to deposit costs.

The first cluster of banks shows a particularly clear “repricing” signature. The strongest step-ups occur in Italy: UniCredit increases from ~2% in FY2021 to 3.16% at the end of the period under examination, and Intesa from 2.16% to 3.15%, i.e., roughly +1.2% over three years, consistent with strong intermediation leverage in the rising-rate environment. Deutsche Bank also climbs steadily; from 2.23% in FY2021 to 2.74% in FY2024, while ING and BNP Paribas show more moderate increases; from 1.83% to 2.27%, for ING, and from 1.93% to 2.15%, for BNP. Crédit Agricole rises from 2.22% to 2.64%, remaining structurally above ING and BNP in this period. In contrast, UBS exhibits the lowest and smoothest profile in this half, moving from 1.37% in FY2019 to ~1.9% in FY2024, consistent with a business mix where wealth/markets dilute pure intermediation margins.

The second cluster combines two distinct regimes. Iberian banks show some of the strongest and most monotonic repricing gains: Santander rises from 2.41% in FY2021 to 3.07% at period’s end, BBVA from 1.39% to 2.39%, and Caixa from 2.33% to 3.13%. UK banks show higher dispersion: Barclays is structurally high, (around ~3–4% and peaking at 4.05% in FY2023), whereas HSBC remains relatively low and stable, moving from 1.20% in FY2021 to 1.56% in FY2024, reflecting a different balance-sheet mix and global funding structure. Specialist institutions remain structurally distinct: Rothschild exhibits very high NIM levels, spiking from 3.5% in FY2020 to roughly 5.0% in FY2024, while Van Lanschot Kempen and Mediobanca are lower and comparatively stable; Van Lanschot moving ~1.5–2.2%, and Mediobanca between ~1.6–1.9%, consistent with their more conservative lending footprints, balance-sheet structures and, usually, lower deal volume regarding advisory.

3.1.2 Revenue and cost-management challenges during COVID 19

The COVID-19 shock represented a dual challenge for bank profitability: an abrupt macroeconomic contraction that threatened borrower capacity, and a simultaneous compression of interest-rate conditions that weakened the intermediation channel. While policy measures and public guarantee schemes supported lending volumes in several jurisdictions, the first-order profitability effect, which we can appreciate in Figures 43 and 44 was largely generalized as a dip, in 2020 was largely driven by, first, pressure on net interest income and margins, second, weakness in selected fee-generating activities during lockdowns, mainly caused by lower customer activity, and, third, banks were constrained to cost stickiness; in general, operating expenses are structurally fixed in the short run, so banks could not reduce costs as quickly as revenues fell during the lockdown shock. This reasoning is stated in 2020 HSBC Annual Report by making explicit that reported revenue was down 10% in 2020, while adjusted operating expenses were down just 3%. Other fellow banks in our selection also experienced this phenomenon, and, in some cases like Santander, the higher investment spent in IT infrastructure was one of the main drivers for this offset.

At system level, supervisory assessments from ECB, as the 2020 SREP (Supervisory Review and Evaluation Process) aggregated results report, have emphasized that profitability in the European banking sector fell in 2020 not only because of higher impairment flows, i.e. increase in expected credit loss allowances and write-downs on loans and other credit exposures, but also because of lower net interest income and a decline in fees and commissions, confirming that the COVID shock operated through multiple income channels rather than through credit losses alone.

As nuanced above, one of the central features of the pandemic period was the deterioration in net interest income driven by the low-for-longer interest rate environment. The November 2020 ECB’s Financial Stability Review explicitly notes that net interest income of euro area banks declined mainly due to lower interest rates, and that higher lending volumes provided only a partial offset; even where headline balances did not contract (or even increased due to emergency drawdowns and guarantee schemes, as displayed in chapter 1’s public banking section), the margin generation was adverse, especially given the effective lower bound on retail deposit remuneration and intense competition in prime lending markets.

Bank disclosures align closely with this macro view. For example, 2020 HSBC Annual Report explicitly states that its 2020 performance was impacted by COVID-19 together with the reduction in global interest rates and reports a decline in net interest margin in 2020 due to lower rates. Similarly, BNP Paribas reports in their FY2020 results that the year's net interest income declined due to the low-interest-rate environment (partly offset by higher loan volumes), while fees fell in part because transaction volumes dropped during the health crisis. These bank-level statements support the broader mechanism emphasized by the ECB in their Financial Stability Review of November 2020: net interest income of euro banks declined mainly due to lower rates, with volume growth providing only a partial offset. In other words, even where lending volumes were sustained, supported in part by public-guarantee schemes and corporate liquidity drawdowns, the repricing of asset yields in a low-rate environment reduced interest income more quickly than banks could lower funding costs, especially given the effective floor on retail deposit remuneration.

Beyond the broad decline in net interest income already discussed, COVID-19 also hit fee generation through a sharp fall in customer transactionality, i.e. the volume of routine payment and service transactions, e.g., (card spending, transfers, account services, trade-related flows, that typically generate fees, during lockdowns, but not uniformly across activities. In retail and commercial banking, the weakest fee lines were typically tied to day-to-day economic activity, such as payments and card volumes, account services, and trade-related fee income, whereas large banks with significant markets franchises sometimes recorded offsetting strength in trading/markets revenues during periods of elevated volatility. A concrete case is illustrated by Santander in their 2020 Q4 Financial Report, which reports that net fee income fell 15% in 2020 and explicitly links this to lower customer transactionality as lockdowns reduced consumption and mobility. Similarly, HSBC's annual results communication highlights that reported revenue declined materially due to lower global interest rates, but that this was "in part offset by higher revenue in Global Markets," showing how market-facing income could cushion fee weakness for some global banks.

On the cost side, banks responded quickly with short-term containment based on rapid reaction measures such as workforce travel bans, reduced discretionary spending, and in some cases bonus moderation. However, as anticipated, the short-run cost base in banking is inherently sticky because large components; staff, IT operations, compliance, and core infrastructure, cannot be resized at the same speed as revenues fall. This dynamic is visible in supervisory monitoring: the EBA's Q4-2020 Risk Dashboard reports that the cost-to-income ratio increased, emphasizing dispersion across institutions (see Figures 47 and 48), which is consistent with the notion that revenue pressure outweighed immediate cost flexibility for a significant part of the sector. The same message is reinforced by EBA's accompanying press release from 31 March 2021, which frames the rise in the cost-to-income ratio as part of persistently pressured profitability conditions in late 2020 to an industry average of 65.1% at that time. This interpretation is useful when reading the cost-to-income dynamics in the present sample: where C/I deteriorates in 2020, the change often reflects short-run cost stickiness and the faster adjustment of revenues to the shock, rather than a discrete deterioration in banks' underlying cost discipline.

Finally, the pandemic shock also acted as an accelerator of structural investment needs, which is relevant when interpreting why bank cost bases do not simply "snap back" after the first shock year. COVID-19 forced banks to ensure service continuity under mobility restrictions, pushing customer activity toward digital channels and reinforcing the need for sustained investment in technology modernization, cloud infrastructure, cybersecurity, and operational resilience. In this context, McKinsey & Co's industry analysis titled "No going back: New imperatives for European banking" published on May 28 2020, states how during the pandemic banks moved rapidly to "protect" customers by rapidly relocating resources toward digital delivery and strengthening IT and operational capabilities to ensure service continuity a significant amount of resources into their IT infrastructures and ensure continuity while building "capital, liquidity, and cost buffers," and argued

that operating models would require reconfiguration rather than a simple return to pre-COVID routines, setting an unprecedented sector shift. From a regulatory perspective, pre-existing regulatory expectations, as the EBA's Guidelines on ICT and security risk management published on November 29, 2019, set explicit expectations for governance, ICT strategy, internal controls, and risk mitigation related to ICT and security risks, providing a supervisory rationale for sustained (and often rising) technology and resilience spending. The implication for this section is that even where banks successfully contained costs in the short run, part of the post-COVID cost trajectory reflects “change-the-bank” spending layered on top of “run-the-bank” costs, which helps explain why efficiency improvements depend heavily on subsequent revenue recovery and operating leverage. Building on the pre-existing supervisory baseline, the EBA explicitly reinforced these expectations during the pandemic. In its Statement on additional supervisory measures in the COVID-19 pandemic published 22 April 2020, the EBA stressed the importance of digital operational resilience, including business continuity arrangements, adequate ICT capacity, and heightened ICT/security risk management, amid widespread remote working and increased cyber-risk exposure, while explicitly linking this focus to the implementation of the 2019 ICT and security Guidelines, i.e. the pre-existing supervisory baseline. This emphasis was subsequently echoed in the EBA Report on convergence of supervisory practices in 2020, published on May 12, 2021, which documents how COVID-19 heightened supervisory attention to ICT and security risks and situates the application of the ICT/security Guidelines within the evolving supervisory agenda. The report also notes that supervisory work during 2020 included heightened attention to institutions' outsourcing arrangements, i.e. increasing reliance on third-party providers for critical ICT service, e.g. cloud, reflecting broader concerns about operational continuity and third-party dependencies during the pandemic, which intrinsically increased operational risk if those providers fail, are disrupted, or are poorly controlled.

3.2 Analysis of the “extra profits”

This section shifts the focus from the pandemic shock mechanics discussed previously in this chapter to the subsequent phase in which several banks recorded unusually strong earnings, often labelled as “extra profits” especially from a significant number of experts and media in Italy (commonly known in the Italian country as “extraprofitti”) during the post-COVID recovery and the interest-rate repricing cycle. The concept of “extra profits”, per se, does not imply abnormal or illegitimate behavior from banking institutions; but it refers rather, to profit outcomes that are materially above pre-pandemic norms, and that warrant separate explanation. The analysis will proceed in two steps. The first section identifies the main bank-specific drivers behind these outperformance episodes; distinguishing recurring intermediation effects (e.g., net interest income uplift from asset repricing relative to funding costs) from one-off factors such as disposals, acquisition accounting, or exceptional items. The second section instead discusses how these profit outcomes interacted with government intervention and public perception, including the policy debate on windfall taxation, distribution constraints, and expectations regarding the reinvestment of profits into resilience, digital transformation and other causes for the “common good”.

3.2.1 Main factors contributing “extra profits”

The first driver is the rate-cycle repricing of intermediation income. When policy rates rise, banks' interest income on loans and securities typically reprices upward faster than deposit remuneration, at least initially, because a large share of retail deposits is “sticky” and priced with a markdown relative to market rates. This initial thesis is coherent with the research carried out so far; after the dip in profitability caused by the immediate effect of COVID-19 in global economy and banking system, main profitability metrics, see for instance the bounce-back effect of RoTE in Figures 43 and 44, jumping from an average 5.1% among all selected banks in FY2020 to an aggregate average of 13.1%

in FY2024, on an rather stable stock of loans, see Figure 40, during the upward rate cycle post lockdowns among main European banking institutions. The ECB Financial Stability Reviews from May and November 2023 explain this mechanism both conceptually; through how maturity transformation and deposit markdowns can widen banks' interest margins when policy rates rise, and empirically; through the evidence that, during the tightening cycle, incomplete and delayed pass-through to deposit rates allowed asset yields to reprice faster than funding costs in the short run. In practice, this creates a period in which NII/NIM rises sharply even if balance-sheet loans stocks/volumes do not expand significantly during post-lockdown cycle, even recorded a negative loan net flow, even if small, for FY2023 of circa –5 billion euros (for non-financial corporations), as shown in Figure 42.

A second contributor to the post-lockdown profitability is the normalization of credit costs relative to the pandemic period. In 2020–2021, i.e. during lockdown period, ECB's Financial Stability Review published on November 2020 stated that banks in the European region increased credit impairment charges, i.e. expected losses on loans and credit exposures recorded on the P&L under IFRS 9, as macro uncertainty surged; then, as the recovery progressed and labor markets stabilized, these impairment flows generally moderated, meaning that the later earnings rebound was not mechanically "taxed" by the same exceptional provisioning intensity, as reported on the ECB's Financial Stability Review from May 2023. Later in the year, the November 2023 ECB Financial Stability Review highlights early signs of rising defaults in some risk-sensitive portfolios; however, the key point remains that the exceptional, pandemic-driven provisioning spike in credit impairment flow provisioning did not mechanically remain that high during lockdown period into the subsequent repricing phase. Overall, this implies that what is often perceived as "extra profits" in 2022–2024 is typically a joint outcome of stronger intermediation income from rate repricing and a credit impairment-charge environment that, while no longer dominated by pandemic-era provisioning, remained contained in aggregate but increasingly differentiated across vulnerable segments, that is main risk-sensitive portfolio aggregates during the pandemic, such as commercial real estate, more levered corporates, SMEs in cyclical sectors or exposures sensitive to energy prices or refinancing risk.

Finally, the "extraprofitti" framing is particularly salient in Italy because the public-policy debate explicitly targeted the gap between rising lending rates and comparatively slower deposit remuneration, i.e. the widening of banks' net interest margins. This mechanism is consistent with ECB evidence on the tightening cycle, from their May 2023 Financial Stability Review: between June 2022 and March 2023, euro area interest rates on term deposits rose by about +2.44%, while overnight deposit rates increased only modestly (about +0.25%), illustrating the incomplete and delayed pass-through, also known as deposit beta, that can temporarily boost NII/NIM. Against this backdrop, Italy introduced an extraordinary bank levy in 2023; the initial announcement as a one-off 40% windfall tax linked to the increase in banks' net interest margin. In the final framework adopted upon conversion of "Decreto Legge, 10 Agosto 2023, No. 104", professional legislative commentary clarifies that the tax applies (for FY2023) to the portion of the interest margin that exceeds by at least 10% the FY2021 level, with a 40% rate, and it includes two design elements that are crucial for interpretation: first, a cap on the payable amount at 0.26% of total RWAs, which for our Italian banking institutions (Intesa, UniCredit and Mediobanca) would be 720.4, 770.6 and 123.8 million euros, respectively, and, second, an "opt-out" allowing banks, instead of incurring into cash payment, to allocate at least 2.5x the tax amount to a non-distributable reserve, that an stockholders' equity item not meant to be distributed as dividends, alongside a prohibition on passing the burden onto clients. This Italian intervention aligns with a broader European pattern of policy responses to the post-pandemic profitability upswing. IMF Working Paper "Morgan Maneely & Lev Ratnovski, Bank Profits and Bank Taxes in the EU, 2024" properly documents a wave of temporary bank taxes and levies introduced or expanded across several EU jurisdictions in response to the sharp increase in

bank earnings during the tightening cycle, and compares how “excess” tax bases are defined across countries, ranging from measures explicitly linked to net interest income or interest-margin uplift (often benchmarked against multi-year averages), as in Italy, to broader profit-based schemes; for example, the Czech Republic’s windfall tax defined on excess bank profits above the 2018-2021 average, making banks pay a 60% on those excess profits. This cross-country evidence places the Italian *extraprofitti* measure within a wider family of policy tools designed to capture part of the intermediation income windfall associated with rapid rate repricing.

3.2.2 Government intervention and public perception

Whereas Section 3.2.1 focuses on the mechanisms behind the post-pandemic profitability uplift and summarizes the main fiscal responses, this section adopts a political-economy perspective and examines why the “extra profits” narrative became salient, how it was framed in public debate, and how policy interventions interact with bank behavior, market expectations, and financial stability considerations. The core issue is not simply that bank profits increased, but that the increase appeared to be driven by an asymmetric pass-through of monetary tightening: lending rates rose rapidly, while deposit remuneration adjusted more slowly, especially for overnight retail balances, i.e. household/customer deposit and current accounts.

A central empirical anchor for this perception channel is provided, as mentioned in the previous section, by the ECB, which documents that during the early phase of tightening deposit rates adjusted only gradually, between June 2022 and March 2023, euro area rates on term deposits rose markedly (around +2.44%), while overnight deposit rates increased only modestly (around +0.25%). This divergence did not introduce a new profitability driver per se; rather, it shaped public perception because it made the distributional asymmetry visible: borrowing costs for households and firms repriced quickly, while returns on a large share of transactional deposits lagged considerably. In this setting, the discussion of “extra profits” was framed less as a question of managerial performance and more as a question of how the benefits and costs the monetary phenomenon that was happening at that time were transmitted across different economic agents.

Along the lines of what said above, it is crucial to note that deposit repricing is not only about rates but also about composition: as market rates increase, depositors tend to shift from low-remunerated overnight products toward higher-yielding term deposits, which gradually increases banks’ funding costs and erodes part of the initial margin uplift. This provides an important nuance for the present analysis: the public scrutiny is typically most acute during the early tightening phase when deposit pass-through remains low and the margin uplift is most pronounced, while later phases tend to be characterized by stronger competition for deposits and rising deposit costs, and thus drifting out, relatively, these “extra-profits” subsequently.

Government interventions, discussed in Section 3.2.1, can be interpreted as responses to this combination of distributional salience and macro-financial transmission concerns. Importantly, the policy debate was not limited to fiscal revenue collection; it also reflected the broader political sensitivity of the mechanism itself, i.e. the widening gap between lending yields and deposit remuneration. The immediacy of the political-market interaction is visible in investor reactions to unexpected policy announcements. A 2023 Reuters’ article reported that the initial Italian windfall measure in August 2023 triggered a sharp market response and contributed to a sizeable decline in European bank stocks, illustrating how quickly “extra profits” narratives can translate into valuation repricing and uncertainty around future capital distribution. This view matters significantly because it implies that government intervention can affect banks not only through the direct, realized fiscal cost, i.e. the tax liability itself, but also through a market-expectations channel. When a windfall measure is announced, especially if it is perceived as unexpected or politically motivated, investors

may revise their beliefs about the predictability of the policy environment, including the perceived probability of further levies, distribution constraints, or other ad-hoc interventions. Such policy uncertainty typically raises the required return demanded by equity holders (i.e., the equity risk premium), which can be reflected immediately in weaker bank valuations even before any cash payment is made. This mechanism is visible in market reactions to the Italian windfall-tax announcement, which Reuters reported triggered a sharp sell-off in euro area bank stocks, highlighting investor concerns about policy risk.

Beyond the fairness narrative, the “extra profits” episode highlights a policy trade-off between capturing part of a temporary intermediation uplift and preserving banks’ capacity to build buffers and support credit supply. The IMF (“Maneely, Ratnovski” (2024)) frames this trade-off in its cross-country assessment of bank taxes in the EU, emphasizing that unusually strong bank earnings during the tightening cycle are closely linked to delayed deposit pass-through and therefore may be partly transitory. The IMF (“Maneely, Ratnovski” (2024)) also discusses how design choices differ in their implications for bank resilience and incentives, and it points to alternative or complementary approaches to windfall taxation, such as “locking in” elevated profits as usable capital through macroprudential tools, e.g., countercyclical buffer settings, where appropriate. This perspective is analytically useful because it frames intervention not only as redistribution but also as a potential financial stability tool, depending on policy objectives and implementation.

A further strand of public discussion extended beyond retail deposit pass-through to the interaction between monetary policy implementation and bank earnings in an environment of abundant liquidity. The European Parliament study “Atanas Pekanov, Margit Schratzensaller “The taxation of the EU’s financial sector: Options and experiences”, June 2025” on financial-sector taxation notes that the windfall profit tax debate gained prominence after the inflation shock and discusses estimates suggesting that euro area banks earned sizable net interest income from excess reserves in 2023, 130 billion euros to be precise, framing this as a windfall linked to the remuneration of reserves at higher policy rates. Whether or not one adopts this interpretation, it reinforces a broader point: “extra profits” were often presented not simply as the result of managerial performance, but as a by-product of the policy and market environment (rate hikes, liquidity conditions, and slow deposit repricing), thereby increasing political scrutiny and the perceived legitimacy of intervention.

Taken together, the post-COVID “extra profits” debate can be understood as the outcome of four interacting channels: (i) a measurable pass-through gap in deposit remuneration during the early tightening cycle, (ii) the visibility of higher borrowing costs relative to deposit returns, which shaped distributional narratives around the transmission of monetary policy, (iii) a policy trade-off between redistribution and resilience/credit supply regarding whether elevated profits should be taxed, retained as capital buffers, or otherwise channeled to support lending, and (iv) market sensitivity to surprise fiscal interventions and the uncertainty they generate around future distributions and regulatory strategy to investors. In combination, these channels help explain why the same profitability dynamics that improved banks’ capital generation and headline performance also triggered political scrutiny and heterogeneous policy responses across jurisdictions. For the purposes of this chapter, the key implication is that “extra profits” are not only an accounting outcome but also a macro-financial and political-economy phenomenon: they emerge from the interaction between interest-rate pass-through, bank funding structures, and the policy environment, and they can feed back into banks’ behavior through distribution constraints, buffer-setting decisions, and valuation effects.

4. Risk management analysis in major markets

This chapter provides a comparative analysis of risk management practices across our sample of banking groups operating in major European markets. It is structured in two steps. First, it reviews the literature on banking risk management during COVID-19 pandemic, focusing on how the pandemic reshaped banks' risk governance and the relative importance of credit, liquidity, market, and operational risks. Second, it develops a metric-based empirical assessment of banks' risk profiles over 2019–2024 using indicators that are observable and replicable from public disclosures (annual reports and Pillar 3). The purpose is to connect the literature's narrative on risk “reweighting” after COVID with a coherent cross-bank comparison, before moving into a detailed discussion of each risk category and the results obtained from the selected metrics.

4.1 Literature review

COVID-19 constituted an exogenous, system-wide stress episode that tested banks' ability to manage several risk channels at once. In contrast to crises originating within the financial sector, the pandemic combined a sudden deterioration in macroeconomic conditions with extreme uncertainty, disruptions to operational continuity, and an abrupt repricing of financial assets. This combination matters for risk management because it shifts attention from “within-model” calibration issues toward resilience and governance: banks must not only measure risk but also maintain control effectiveness and service continuity while risk regimes change rapidly. The academic evidence on European banking generally interprets the relative stability observed in the acute phase of the pandemic as the outcome of strong starting buffers and unprecedented policy backstops, rather than the absence of vulnerabilities; consequently, the literature often emphasizes that COVID altered both the timing and the composition of risk, with some channels muted in the short run but potentially shifting into the medium term.

Agoraki, Kouretas and Nadal De Simone (2023) place the pandemic “in perspective” by studying euro area banking performance in a framework that compares COVID-19 with earlier crisis episodes. Using banking indicators observed at a quarterly frequency and modelling approaches that allow for time variation and regime changes, they show that euro area banking performance during COVID did not replicate the pronounced and persistent deterioration that characterized the Global Financial Crisis. A key interpretative point is that the policy environment was fundamentally different: large fiscal support packages, accommodative monetary policy, and supervisory flexibility reduced systemic uncertainty and limited self-reinforcing financial amplification. At the same time, the paper provides an important caution for bank risk assessment: stabilizing policies can compress short-run observed stress, meaning that part of the vulnerability may materialize later as support is withdrawn. This logic is central for credit risk in particular, as the delayed materialization of borrower distress implies that asset-quality monitoring in the post-pandemic period becomes crucial even if acute-phase performance appears relatively stable.

These macro-level findings align with the bank-level adjustment mechanisms documented by Miklaszewska, Kil and Idzik (2021), who examine EU members in Central, Eastern and Northern Europe and emphasize that COVID was not only a cyclical shock but also a catalyst for strategic adaptation. Their analysis connects risk and return outcomes to bank behavior during the pandemic, highlighting that banks accelerated transformation and digitalization as a response to operating constraints and competitive pressure. This is relevant for a risk-management chapter because strategic adaptation can reshape multiple risk channels simultaneously: profitability pressure may constrain internal loss-absorption capacity and influence risk appetite; shifts to digital delivery can alter operational risk exposures (systems reliance, cyber and third-party risks); and changes in balance-sheet structure can interact with liquidity and market risk sensitivity. The empirical implication is that a single indicator is rarely sufficient to describe banks' risk positions in a pandemic setting; instead,

a suite of complementary metrics is needed to capture both the balance-sheet consequences of stress and the organizational changes that affect risk governance.

Taken together, these two anchor contributions motivate framing COVID as both a stress test and a structural accelerator for banking risk management. The stress-test dimension concerns whether banks entered the shock with sufficient buffers, credible governance frameworks and effective risk processes to handle a sudden regime change. The structural-accelerator dimension concerns whether banks could adapt operations and business models rapidly while preserving control effectiveness. This framing provides the conceptual foundation for a multi-risk empirical approach: credit, liquidity, market and operational risks should be analyzed jointly because the pandemic reshaped them at different speeds and through interacting channels.

With respect to credit risk, the pandemic literature consistently distinguishes between expected deterioration and realized deterioration. Agoraki et al. (2023) emphasize that extensive support measures limited short-run default cascades and reduced amplification, but that this may shift credit vulnerabilities into later periods as support fades. In this setting, realized asset-quality measures, particularly the stock of non-performing loans (NPLs) or close accounting proxies such as credit-impaired/Stage 3 exposures, become essential for monitoring the tangible burden of credit risk on banks' balance sheets. Miklaszewska et al. (2021) reinforce this logic by treating NPL measures as part of a broader risk and stability assessment, consistent with the view that NPL dynamics capture when borrower distress becomes sufficiently severe to be recognized in a comparable way across institutions. This supports the use of NPL ratios as a core cross-bank credit risk proxy, especially in comparative work where disclosure granularity differs and where model-based expected loss measures may be sensitive to scenario choices in a highly uncertain environment.

Liquidity risk was initially a major concern during COVID because uncertainty can trigger funding pressures and market dysfunction can impair the ability to monetize assets that are a priori liquid. Yet, the European experience suggests that system-wide liquidity spirals were largely avoided, and the literature associates this outcome with buffers and policy backstops rather than with the absence of liquidity risk per se. Agoraki et al. (2023) interpret the relative stability of euro area banking performance as consistent with a policy environment that reduced uncertainty and limited crisis propagation, an interpretation aligned with the stabilizing role of central-bank facilities and prudential flexibility in containing funding stress. From a risk-management perspective, this reinforces the conceptual role of liquidity buffers and stable funding as *ex ante* resilience mechanisms, and it motivates the use of supervisory liquidity indicators such as the LCR and NSFR as standardized measures of liquidity resilience across banks and time.

Mare and Gramlich (2021) complement this crisis-narrative perspective by analyzing risk exposures in European cooperative banks within a comparative framework that considers several risk categories jointly. Their results are informative because they encourage a disciplined interpretation of liquidity risk relative to other banking risks. First, they report that credit risk and other profitability-related exposures tend to co-move and are significantly related to macroeconomic conditions, implying that risk channels frequently interact and should not be analyzed in isolation. Second, liquidity-related exposures are comparatively less tied to the same set of explanatory variables in their framework, suggesting that liquidity risk is influenced strongly by institutional design, funding structure and regulation. For a COVID-era chapter, this reinforces an interpretation of LCR/NSFR-type indicators as measures shaped by both internal management and the regulatory/policy environment, rather than purely by contemporaneous macro conditions. It also supports treating liquidity resilience as a key dimension of bank stability even when immediate liquidity crises do not materialize.

Market risk became acute during COVID because volatility regimes shifted abruptly and asset prices repriced rapidly, increasing valuation uncertainty and intensifying downside risk. Batten, Choudhury, Kinatder and Wagner (2023) examine volatility impacts on European G-SIBs, i.e. European Global Systemically Important Banks, including most of our selected banking institutions, by studying the transmission between implied volatility (particularly US VIX, since authors considered it the main global risk indicator) and bank equity returns using quantile methods. Their evidence highlights an asymmetry that is particularly relevant for risk management: volatility shocks exert stronger effects in the lower tail of bank return distributions, consistent with crisis amplification in downside states. They also show that the COVID episode is characterized by pronounced and immediate market-stress effects, reinforcing the view that market risk in a pandemic setting is not simply “more volatility” but also stronger tail dependence and quicker regime shifts. For banks with material trading activities or valuation-sensitive portfolios, these features are central because they can affect both income volatility and capital requirements precisely when downside outcomes matter most.

Duttilo, Gattone and Di Battista (2021) provide complementary evidence by modelling euro area equity market volatility around pandemic “waves” and documenting changes in volatility dynamics and leverage effects. Although their analysis is not bank-specific, it characterizes the external volatility environment that banks’ trading books and fair-value exposures faced. This macro-market evidence supports interpreting COVID as a volatility regime shift in which market risk measures can move materially even absent structural balance-sheet growth. Consequently, bank-level market-risk proxies based on trading orientation, such as the trading income share and the share of financial assets held for trading in total assets, are well-motivated: they capture differences in the extent to which banks’ income and balance sheets are exposed to valuation-driven risk when volatility and correlations change significantly.

Operational risk is less directly observable in public data than credit or liquidity risk, yet COVID made operational resilience central: banks needed to preserve continuity of critical services, reconfigure operating processes quickly, and maintain effective internal controls under widespread remote and digital delivery. In this context, governance frameworks that translate strategy into measurable risk constraints become especially important. Baldan, Geretto and Zen (2014) develop a quantitative model for implementing a Risk Appetite Framework (RAF) in the Italian banking system, showing how risk appetite can be operationalized via measurable constraints linked to regulatory capital requirements across risk categories. While predating COVID, the conceptual contribution is highly relevant to a pandemic context: a well-specified RAF provides a structured mechanism for calibrating risk limits and aligning decision-making with a bank’s capacity to absorb shocks when the operating environment changes abruptly.

Tursoy (2018) reinforces this governance-oriented perspective by describing the bank risk management process as an integrated cycle of identification, measurement, monitoring and reporting. This process view is particularly important for operational risk under COVID because exposures changed rapidly and unevenly: remote working, accelerated digital adoption and reliance on external service providers increased the need for timely monitoring regarding controls, incidents and vulnerabilities. Together, the RAF logic of Baldan et al. (2014) and the process framework of Tursoy (2018) support the use of prudential proxies for operational risk in empirical work, such as operational-risk RWAs and operational capital intensity, especially where explicit, comparable operational loss data are not consistently disclosed across institutions. This is consistent with the practical challenge observed in bank reporting: operational risk often appears through qualitative disclosures and capital requirements more than through a harmonized, publicly available “loss series.”

Across the selected contributions, three takeaways are directly relevant for the empirical design of this chapter. First, COVID did not automatically become a banking crisis in Europe; rather, strong starting buffers and an extraordinary policy environment largely contained immediate financial amplification, implying that short-run performance can understate underlying vulnerabilities (Agoraki et al., 2023). Second, the pandemic reweighted the relative importance of risk channels: credit-risk recognition may be delayed, liquidity risk is mediated by buffers and facilities, market risk intensifies through volatility regime shifts and tail dependence, and operational risk shifts toward resilience and governance challenges (Miklaszewska et al., 2021; Batten et al., 2023; Duttalo et al., 2021; Baldan et al., 2014). Third, risk channels interact through macro conditions, bank business models and the regulatory environment, supporting the use of a suite of complementary indicators rather than reliance on a single metric. Overall, the literature supports interpreting the COVID period as both a stress test of risk governance and a structural accelerator of risk management practices, providing a coherent foundation for the bank-level metrics employed in the remainder of the chapter.

4.2 Overview of bank risks and comparative analysis

In this section, we will treat extensively the four main risk types that banking institutions usually face in both conceptually and empirically, through the quantitative analysis of a set of metrics that describe best all four banking risks presented at the beginning of the chapter. The evidence highlights a clear post-pandemic normalization in credit risk, with NPL ratios generally trending down from 2019–2020 peaks, albeit with meaningful cross-bank heterogeneity driven by business mix and geography. Liquidity risk is evaluated through structural funding resilience (NSFR), showing that banks’ long-term funding positions remain comfortably above regulatory minima in the post-implementation period, supporting the narrative that liquidity stress was largely contained after the acute COVID phase. Market risk is captured via trading orientation (e.g., trading income share), which varies widely across institutions and increases in periods of elevated volatility—consistent with the idea that COVID and the subsequent rate/volatility regime change reshaped market-risk sensitivity more for trading-intensive groups. Finally, the chapter discusses operational risk through the lens of both outcomes and prudential burden, noting that explicit operational loss disclosure is uneven across banks, which motivates complementing loss-based measures with regulatory proxies (e.g., operational-risk RWAs/capital intensity) to preserve comparability. Overall, the chapter is designed to connect the literature’s “risk-reshaping” narrative after COVID with a coherent, cross-bank empirical comparison, setting up the detailed results in the upcoming four sub-sections.

4.2.1 Credit risk

Credit risk is defined as the potential for losses arising from a borrower’s failure to meet contractual obligations, whether through missed payments, restructuring, or default. For banks, credit risk is structurally central because loan portfolios and counterparty exposures typically represent the dominant share of on-BS assets, as we assessed in the first chapter when analyzing our selected banks’ share of loans and advances with respect to total assets (see Figure 9), and are closely linked to the macroeconomic cycle. Credit deterioration can emerge gradually through weakening borrower fundamentals or abruptly during systemic shocks, which on the result review we will observe that COVID-19 pandemic did not represent a negative constraint on this matter for most selected banks, and it ultimately materializes in impaired and non-performing exposures, higher provisions recorded on balance sheet, and reduced profitability and capital generation. Credit risk is captured through the non-performing loan ratio (NPL ratio), defined as non-performing loans divided by total on-balance-sheet loans outstanding. This measure is appropriate because it proxies realized credit deterioration already embedded in the balance sheet, rather than purely expectations made by banks themselves or third parties. In practice, the numerator is disclosed by banks, in any case regardless, as non-performing exposures inside their Pillar 3 credit-quality templates, precisely inside the “performing

and non-performing exposures and related provisions” tables known specifically as EU CR1 section, while the denominator is the corresponding total stock of loans and advances outstanding, summing both performing and non-performing since it does represent the total carrying amount of all loans and advances outstanding, which is easy to retrieve inside banks’ BS asset side. Under IFRS 9, Stage 1 loans are performing exposures with no significant increase in credit risk, Stage 2 loans are still generally performing but have experienced a significant increase in credit risk, while Stage 3 loans are credit-impaired and broadly correspond to non-performing loans/exposures (NPLs/NPEs) used as the numerator of the NPL ratio. The NPL ratio is therefore a transparent and replicable indicator of asset quality and cross-bank credit risk burden that is directly obtainable from public disclosures. Following, the clustered (the same two clusters as in chapter 3) results obtained for the NPL ratio:

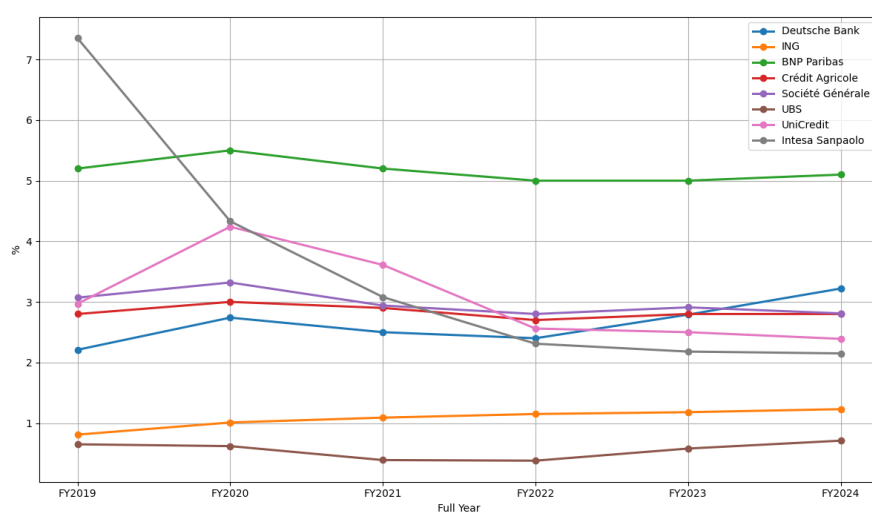


Figure 56: NPL ratio evolution of the first cluster of banks during our selected period.

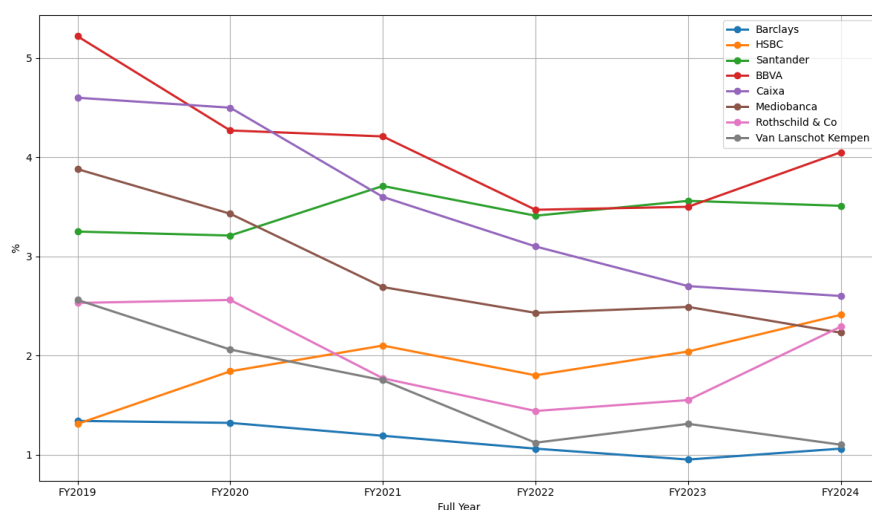


Figure 57: NPL ratio evolution of the second cluster of banks during our selected period.

By looking at the NPL ratios reported in both Figures 51 and 52, it emerges that, despite the COVID shock, aggregate credit deterioration across the sample remained broadly contained, with some nuances, and did not translate into a severe, system-wide asset-quality crisis. For most banks, NPL ratios remained at moderate levels and, in several cases, continued to decline over the period,

consistent with extensive policy support during the pandemic and with banks' active balance-sheet management and de-risking strategies. In this sense, the metric mainly captures a gradual normalization and cross-bank heterogeneity in starting positions, rather than a uniformly "critical" credit shock across institutions. The strongest improvement is Intesa Sanpaolo, where the NPL ratio compresses from 7.35% in FY2019 to 2.15% in FY2024, a reduction of roughly –5.20%, which is a standout result in the panel and clearly consistent with major de-risking and disposal/curing strategies over the period. Significant improvements are also visible for CaixaBank moving from ~4.5% to 2.6%, and Mediobanca from roughly 4% to 2.23%. Van Lanschot Kempen also shows a strong downward trend shifting from 2.56% to 1.10%, consistent with steadily improving asset quality in a smaller/specialized balance sheet. For BBVA, the ratio falls meaningfully from ~5.22% in FY2019 to ~4% at the end of our selected period, though it remains structurally higher than most Western European peers, consistent with geographic and portfolio mix.

Two banks are clear "out-of-normal" in the opposite direction: HSBC rises from 1.31% in FY2019 to almost 2.5% in the last full year, and Deutsche Bank increases from 2.21% to 3.22%. These trends are important flags for interpretation: they may reflect genuine deterioration, portfolio/perimeter effects, or different timing of recognition and classification. The 2023–2024 YoY movements highlight where late-period credit dynamics shift: Rothschild & Co rises from circa 1.6% to 2.3% and BBVA from 3.50% to slightly more than 4%, while many others remain flat or continue modest improvements, e.g., UniCredit moving from 2.50% to a bit lower than 2.4%. Overall, the credit-risk metric confirms a broad post-pandemic improvement but preserves meaningful cross-bank heterogeneity, which is exactly what you want for a comparative risk-management chapter.

4.2.2 Operational risk

Operational risk refers to the possibility of losses arising from inadequate or failed internal processes, human error or misconduct, systems and technology failures, or external events. In banking, this includes mainly internal and external fraud, conduct and legal risk, model and processing errors, cyber incidents, business disruption, and failures in outsourced or third-party services, among others. Overall, the credit-risk metric confirms a broad post-pandemic improvement but preserves meaningful cross-bank heterogeneity, which is exactly what you want for a comparative risk-management chapter or market risk, as we will see in section 4.2.3, operational risk is not tied to a single balance-sheet position; it is a type of risk embedded in the way a bank runs its business and therefore scales with organizational and technological complexity, product mix, geographic footprint, and the intensity of transactional activity. The COVID-19 episode further highlighted this dimension by forcing rapid changes in operating models, predominantly remote work and accelerated digital delivery, increasing dependence on technology and external providers, and raising the importance of operational resilience and control effectiveness under stress.

Given the limited comparability of publicly disclosed operational loss data across banks, operational risk is assessed using a prudentially consistent proxy: operational risk capital intensity, defined as operational risk risk-weighted assets divided by total group RWAs. This metric captures the share of a bank's regulatory risk-weighted exposure that is attributable to operational risk and therefore approximates the relative capital burden associated with operational risk under the Basel regulatory framework. Its main advantage is cross-bank consistency, as both OpRisk RWAs and total RWAs are disclosed within Pillar 3 prudential reporting, most precisely the OpRisk RWAs are reported in the "Overview of risk-weighted assets" tables, known specifically as the EU OV1 section, where operational risk appears as a separate line item alongside other risk types. As a result, the measure provides a transparent and replicable indicator of operational risk relevance in the capital structure (under the valid regulatory framework), while avoiding reliance on operational loss series that are often not reported in a uniform or complete manner across institutions.

Following, the clustered results obtained for the operational risk capital intensity:

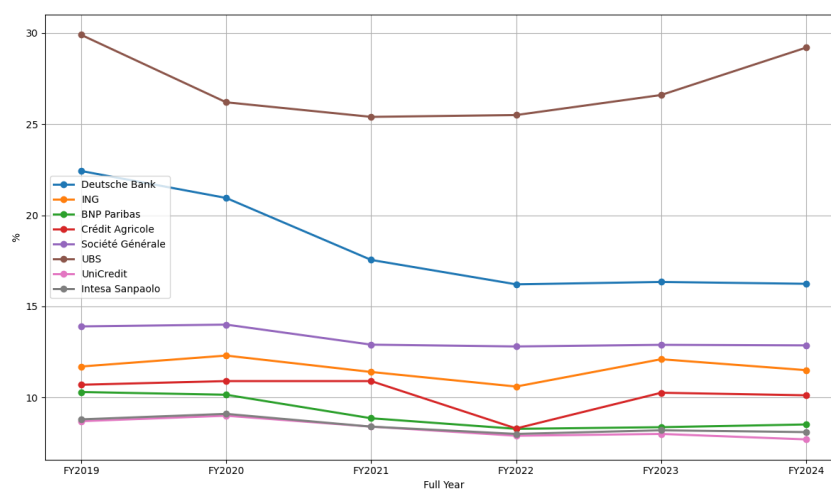


Figure 58: OpRisk capital intensity evolution of the first cluster of banks during our selected period.

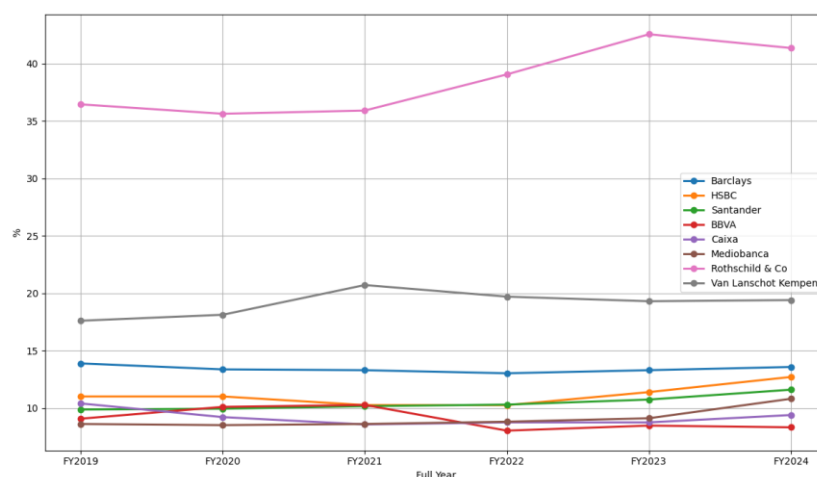


Figure 59: OpRisk capital intensity evolution of the second cluster of banks during our selected period.

At the end of our selected period, i.e. in FY2024, most universal banks sit in a relatively contained band of roughly 8% to 14%, while several institutions stand out structurally. Rothschild & Co is the clear outlier, reaching 41.4% in FY2024 and peaking above 42% in FY2023; Rothschild’s unusually high operational risk capital intensity primarily reflects its business model, consisting of a relatively limited traditional lending, i.e. small credit-RWA base, combined with a revenue-intensive, operationally complex platform where advisory and wealth activities are the backbone. UBS is also structurally high, finishing at 29.2% in FY2024, consistent with its role as a globally complex wealth and investment banking group, where high transaction volumes, multi-jurisdictional operations, and elevated conduct/technology/third-party risks translate into a sizeable operational risk capital charge under the Basel framework relative to its overall RWA composition. Attuned with its precedent peers, Van Lanschot Kempen stays elevated in the 18–21% range across the period.

The most interesting dynamic trend is Deutsche Bank, where operational risk capital intensity falls from 22.4% in FY2019, year that the German group closed with a negative net income amid its inter-business unit restructuring and transformation process, to 16.2% in FY2024, indicating a meaningful change in the composition of RWAs over the period. By contrast, many banks display only modest drift: Barclays remains tightly clustered around 13.0–13.9%, UniCredit around 7.7–9.0%, and Intesa around 8.0–9.1%. A notable upward drift appears for Santander, rising from ~9.86% in FY2019 to

~11.6% (FY2024), which is meaningful enough to flag but still consistent metric's broadly structural, low-volatility behavior across the sample.

4.2.3 Market risk

Market risk refers to the risk of losses due to adverse movements in market variables, such as interest rates, foreign exchange rates, equity prices, credit spreads, and volatility in general, that affect banks through sales & trading activities, valuation of fair-value instruments, and hedging positions. Market risk is particularly relevant for banks with material investment banking and trading operations, where income and capital can become highly sensitive to volatility, market trends and correlation shifts. COVID and the subsequent high-inflation and rate-repricing environment reinforced the importance of market risk by producing sharp asset-price adjustments and elevated volatility, with disproportionate effects on trading-intensive business models.

Market risk is assessed using two complementary indicators that jointly capture earnings sensitivity and balance-sheet exposure. First, trading income share, which is defined as net trading income divided by operating income, capturing how dependent the bank's revenue base is on trading performance and market-driven results. Net trading income is generally disclosed in the consolidated income statement (often as "Net trading income" or equivalent, sometimes within market-activities notes), while operating income corresponds to the group's total operating income as presented in the income statement or segment reporting. Second, trading assets share, which is defined as financial assets/instruments (at fair value) held for trading divided by total assets, capturing the weight of trading book exposures within the balance sheet. Both inputs are typically found in the consolidated statement of financial position and/or the financial instruments note, where banks disclose asset classification, like the financial assets held for trading, alongside total assets. Using both indicators improves interpretability: the first focuses on revenue sensitivity to market conditions, while the second reflects the structural scale of trading exposures relative to the bank's balance sheet. Following, the clustered results obtained for trading income share and trading assets shares:

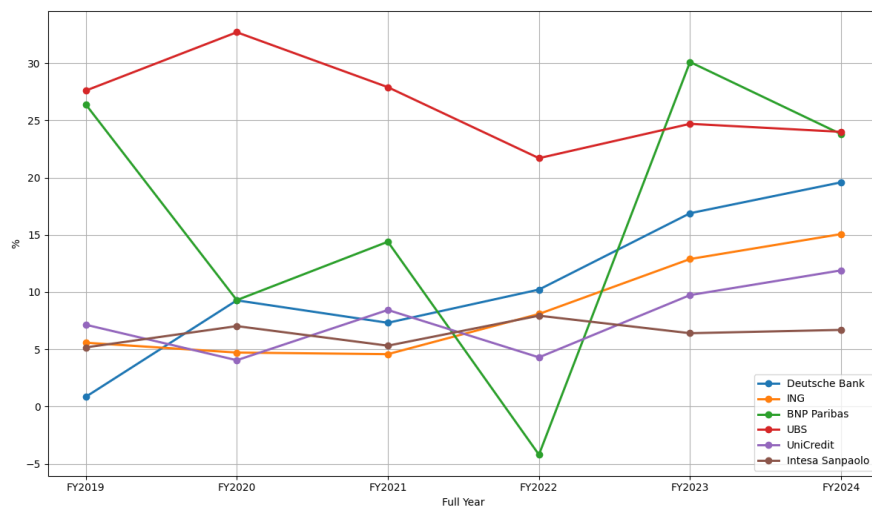


Figure 60: Trading income share evolution of the first cluster of banks during our selected period.

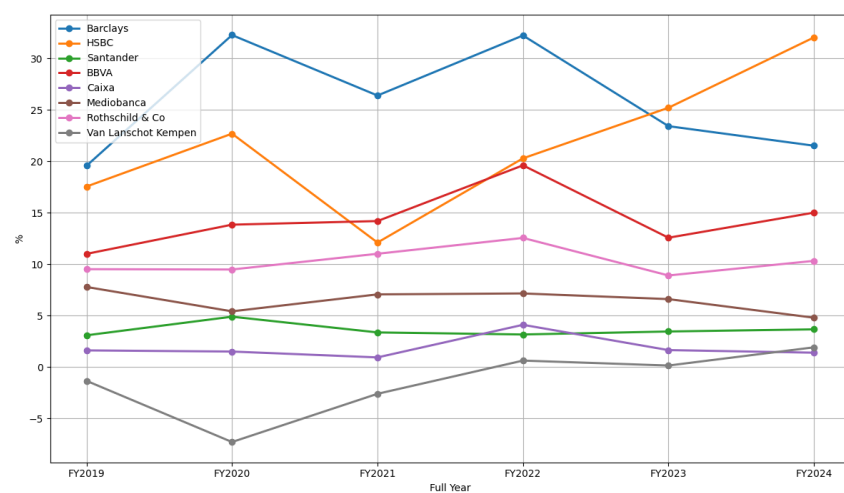


Figure 61: Trading income share evolution of the second cluster of banks during our selected period.

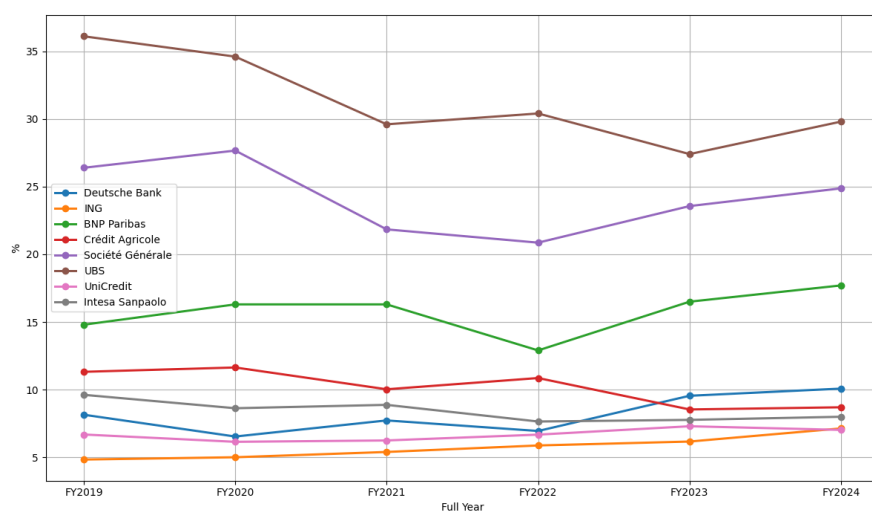


Figure 62: Trading assets share evolution of the first cluster of banks during our selected period.

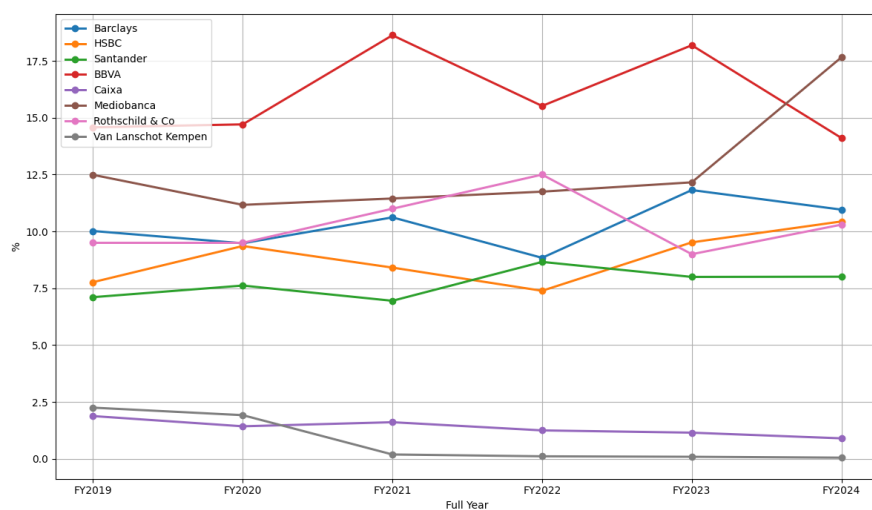


Figure 63: Trading assets share evolution of the first cluster of banks during our selected period.

The two market-risk proxies behave exactly as you'd expect if they are capturing business-model differences and volatility sensitivity. The trading income share is, logically, the more and “state-dependent” of the two metrics: it can move sharply with volatility regimes and can be affected by reporting structure. In FY2024, the trading income shares range from very low values for retail-oriented banks, e.g. CaixaBank ~1.4%, to very high values for market-facing groups, like HSBC at 32.1%, UBS with ~24.0%, Barclays reaching almost 22%, and Deutsche Bank at almost 20%. A standout dynamic is Deutsche Bank's jump from ~0.85% (FY2019) to ~9.28% (FY2020) and then to ~19.6% (FY2024), which is a textbook example of how market volatility periods and revenue mix can reweigh trading contributions, plus the FY2019 restructuring constraint that deterred the Group's profitability. HSBC is another clear move, jumping from ~12% in FY2021 up to 32.1% in FY2024, consistent with a stronger contribution from markets activity as the rate/volatility environment shifted. BNP Paribas is the most visibly noisy series, starting from a significant decline from FY2019 to FY2020 of rough 17% to then yield -4% of trading income share in FY2022, supposing a loss on trading from markets, followed by ~30% in FY2023, and then a setback to ~24% in FY2024, suggesting that BNP Paribas' trading income was the most public market-dependent among all our banks. This pattern underscores why this metric is informative but must be interpreted cautiously when trading results swing sharply year by year.

For Crédit Agricole and Société Générale, a trading-income-share measure is not computed because their public reporting does not provide a clean, standalone net trading income line that can be isolated consistently across years. Instead, trading revenues are embedded within broader market/business-line aggregates, and in some cases presented in ways that do not allow a transparent reconciliation to a single “net trading income” numerator comparable to their peer banks.

On the other market-risk end, the trading assets share, i.e. financial assets held for trading over total assets, is much more structural and therefore typically more stable. It clearly separates trading-heavy models from retail-heavy models. UBS is the structural winner, with ~36% in FY2019 and decreasing, but still high, to ~30% in FY2024, results that are consistent with its wealth/investment banking footprint. Société Générale also sits structurally high in the mid-20s throughout the whole period. Another relevant institution in this perimeter is BBVA, oscillating trading assets weight between ~19% and ~14% throughout the selected period. At the other extreme, CaixaBank remains near-zero by comparison, sitting at ~1% in FY2024, and Van Lanschot Kempen collapses from 2.25% in FY2019 to 0.05% in FY2024, indicating a sharp reduction in trading-book classification relative to the balance sheet. Overall, combining both proxies gives a clean interpretation: trading assets share tells you who structurally carries market risk, while trading income share tells you when market conditions amplify or compress that exposure through earnings.

4.2.4 Liquidity risk

Liquidity risk is the risk that a bank cannot meet its obligations as they fall due without incurring unacceptable losses, either because it cannot obtain funding at reasonable terms, that is funding liquidity risk, or because it cannot convert assets into cash without significant price impact, i.e. market liquidity risk. During COVID, liquidity risk was an immediate concern due to extreme uncertainty and market disruption, but outcomes were heavily influenced by central bank facilities, regulatory buffers, and banks' pre-existing liquidity positions.

Liquidity risk is captured through two regulatory metrics that reflect complementary horizons. The Liquidity Coverage Ratio (LCR) measures short-term resilience and is defined as high-quality liquid assets (HQLA) divided by net cash outflows over a 30-day stress scenario. It is designed to assess whether a bank can withstand acute liquidity stress using easily monetizable assets. The LCR is typically disclosed in the liquidity risk section of annual reports and in Pillar 3 liquidity disclosures section, often accompanied by a breakdown of HQLA composition and outflow drivers, and it is directly comparable across banks due to harmonized regulatory definitions and minimum requirements, which most often the minimum is 100% and settled by the Basel Committee on

Banking Supervision and made it legally binding by the ECB on the Euro Area. The Net Stable Funding Ratio (NSFR) measures structural resilience over a one-year horizon and is defined as available stable funding, which is composed mainly by, for instance, stable deposits and longer-term wholesale funding, divided by required stable funding. It captures whether long-term assets and activities are funded with sufficiently stable sources, reducing vulnerability to funding shocks and rollover risk, which is the amount of stable funding the bank needs given the liquidity and maturity of its assets and off-balance-sheet exposure. The NSFR is usually disclosed in annual reports and in Pillar 3's liquidity risk sections, and, as in the LCR, the regulatory benchmark is typically set at at least 100%. Together, LCR and NSFR provide a coherent view of liquidity risk management: LCR addresses short-term stress capacity, while NSFR captures longer-term funding stability and balance-sheet structure. Following, the clustered results obtained for the LCR and NSFR:

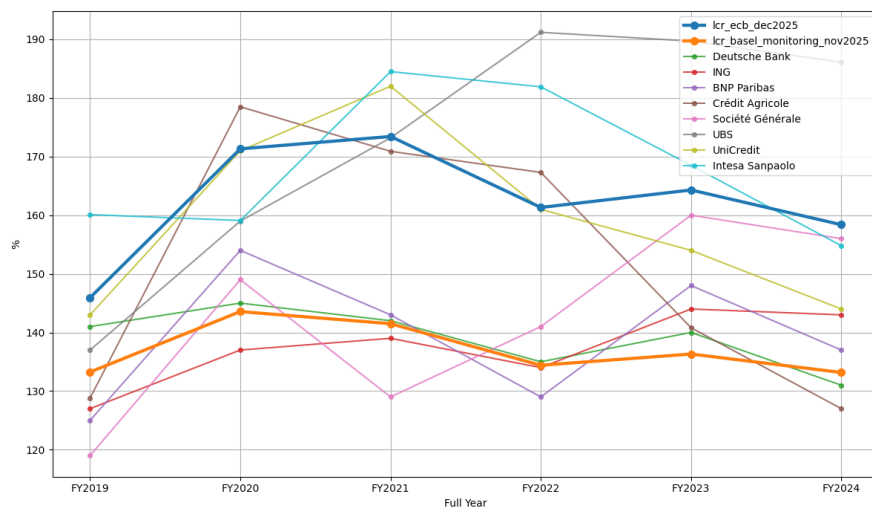


Figure 64: LCR evolution of the first cluster of banks during our selected period.

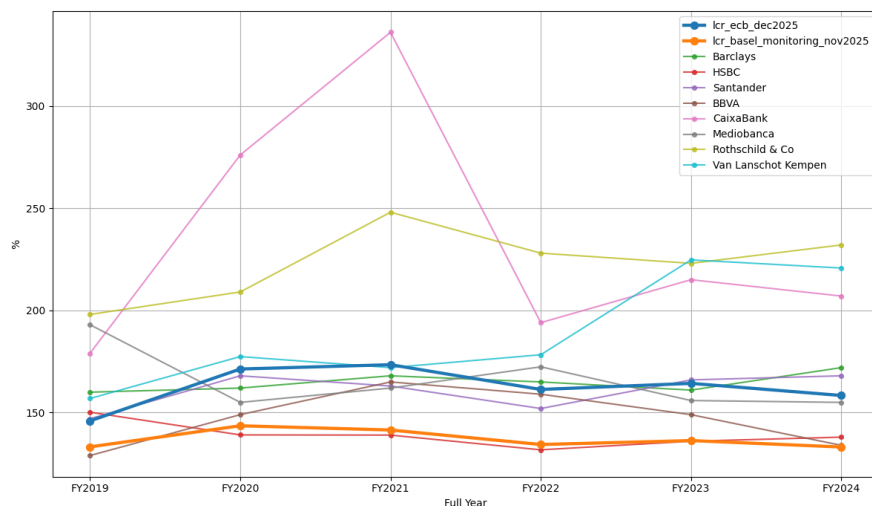


Figure 65: LCR evolution of the second cluster of banks during our selected period.

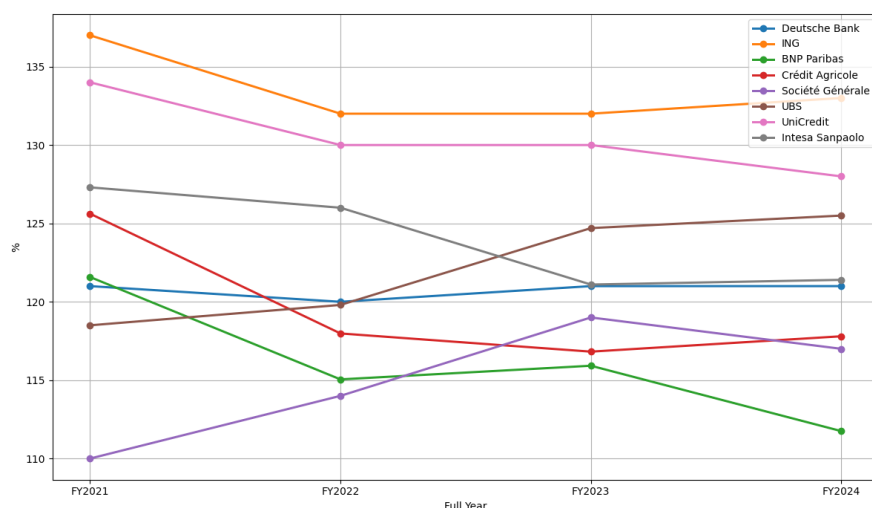


Figure 66: NSFR evolution of the first cluster of banks during our selected period.

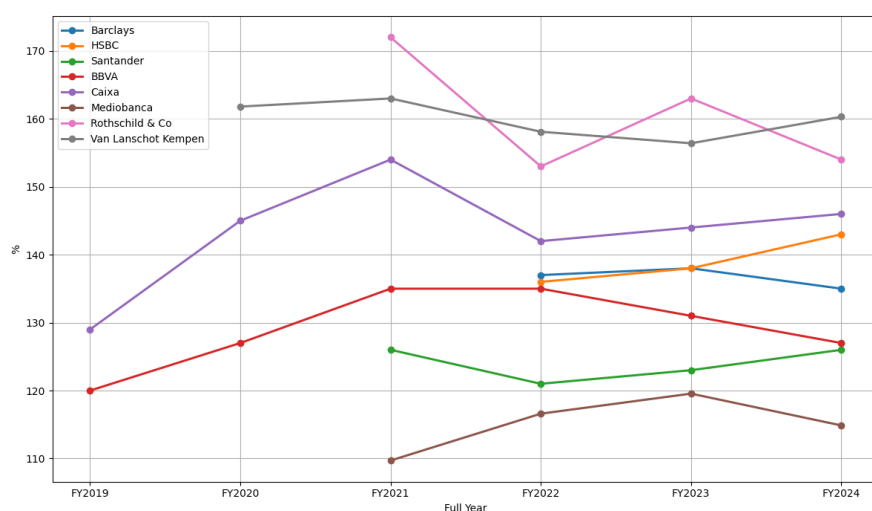


Figure 67: NSFR evolution of the second cluster of banks during our selected period.

Figures 59 and 60 have embedded two benchmarks; the LCR calculated by the ECB on December 2025 among a population of 111 EU-based banks labelled as significant banking institutions (at least 30 billion euros on assets), and the LCR reported on the Basel III Monitoring Report in November 2025, which is calculated among Group 1 banks; cluster of international banks (including extra-EU) with a Tier 1 capital greater than 3 billion euros. Across the sample, LCR remains comfortably above the 100% minimum throughout 2019–2024, but with very wide dispersion that mainly reflects business dynamics among the groups, such as deposit stability, trading/treasury footprint, and internal liquidity buffers, rather than “good vs bad” liquidity management. In FY2024, the range goes from 127% (Crédit Agricole) and 131% (Deutsche Bank) up to 232% (Rothschild & Co) and 221% (Van Lanschot Kempen), with CaixaBank still as well fairly high at 207%. The most “out-of-normal” result in the full panel is CaixaBank’s FY2021 LCR of ~336%, which stands far above peers and is best read as an exceptional balance-sheet/liquidity-buffer configuration in that year rather than a sustainable steady-state target. An important takeaway from this study is that most of our banking

institutions were steadily above the Basel LCR across the selected period, signaling a higher-than-average liquidity buffer with respect to other banking institutions overseas.

For the NSFR, the key preliminary point is disclosure comparability: NSFR was not a standard publicly reported metric before FY2021 for many banks, and in practice disclosure becomes systematic only after the ratio became operationally binding from FY2021 (included) on. Once reported, NSFR levels are much less volatile than LCR and cluster in a relatively narrow band, consistent with NSFR being a structural funding metric, and without a short-term nature as LCR has with the net cash outflows over a 30-day stress scenario as the denominator of the ratio. In FY2024, the observed values mostly sat between 115% (Mediobanca) and ~160% (Van Lanschot Kempen). A notable YoY change is HSBC, improving from 138% to 143%, while British peer Barclays edges down from 138% to 135%. Overall, our liquidity metrics point a good resilience profile for our banking institutions: LCR levels were somewhat heterogeneous among institutions but were kept high, with occasional “spikes,” while NSFR remain more stable once, reflecting its more longer-term quality.

5. Conclusion

This thesis set out to explain how the European banking sector, across its main business lines and major markets, absorbed the COVID-19 shock, how policy and supervisory interventions shaped that absorption, and how the episode changed banks' performance, risk profiles, and strategic priorities over FY2019–FY2024. The evidence built across the chapters points to a core result: COVID-19 was an extreme and one-of-a-kind macro-financial shock, but it did not turn into an aggregate European banking crisis. Instead, it acted as a stress test of pre-existing resilience and as a structural accelerator of digital solutions. At the macro level, the pandemic combined a sudden collapse in activity with disruptions to supply chains and trade, generating an unusually synchronized shock across Europe. However, the post-2020 phase was not a simple “return to normal”: the recovery coincided with new sources of stress; first, volatility and uncertainty, then inflation, and ultimately a rapid monetary tightening cycle. This sequencing matters for banks because it created two distinct environments: an acute COVID phase dominated by liquidity support and emergency measures, and a later phase (especially FY2022–FY2024) dominated by rate repricing, distributional tensions around deposit remuneration, and a material slowdown in credit momentum.

One of the most important empirical takeaways of the thesis is visible in the joint reading of the ECB's balance sheet evidence on lending: the stock of loans outstanding to households and firms continues to expand through the pandemic window, and the flow (“transactions”) series remains clearly positive in 2020–2022. In other words, the aggregate data do not support the narrative, or rather said hypothesis, of a COVID-era euro-area “credit crunch” in net terms. The decisive shift appears later: the flow series collapses toward zero in 2023 and briefly turns negative for NFCs, which is consistent with the sharp weakening in credit demand and tighter conditions documented by the ECB around that time. This macro evidence is coherent with the strategic and operational adjustments described in the thesis: banks maintained continuity of core services, expanded remote delivery, implemented payment relief and state-guaranteed lending at scale, and operated under a policy regime explicitly designed to prevent financial amplification.

Strategically, a common response playbook emerges across the European banking sample. First, banks treated operational continuity as a critical constraint, scaling remote working arrangements, ensuring service availability to customers, and strengthening digital capacity quickly. Second, they supported households and firms through relief measures and emergency lending channels, enabled by prudential clarification (e.g., moratoria frameworks) and by central bank liquidity backstops. Third, they preserved balance-sheet resilience through cautious distribution and capital conservation, aligning with the supervisory priority of keeping banks able to lend through uncertainty. Importantly, these actions did not eliminate risk; rather, they re-timed and re-shaped it, with some vulnerabilities muted in the short run but potentially shifting into the medium term as support faded and macro conditions tightened.

The thesis' performance analysis complements this picture. Profitability weakened in the shock year, i.e. FY2020, mainly due to uncertainty and elevated risk costs, but the sector's performance proved more resilient than in prior crises, e.g. 2008 Credit Crisis. The later tightening phase delivered a pronounced uplift in net interest income for many banks, especially where deposit repricing lagged lending repricing, supporting the “extra profits” narrative discussed in the thesis. That same phase, however, also created policy and political-economy frictions: governments weighed windfall taxes and other interventions with the need for banks to keep building buffers and continue transmitting credit to the real economy. A key interpretative nuance is that the post-2022 profitability uplift and the 2023 slowdown in net lending can coexist: high margins do not automatically translate into fast credit growth when demand weakens and rates restrain borrowing.

From a risk perspective, the pandemic proved doubly instructive: it tested banks' existing control frameworks under extreme conditions while simultaneously pushing institutions to upgrade their risk governance for a more digital and operationally complex banking environment. Credit risk did not materialize as an immediate systemic deterioration, being consistent with guarantees and

extraordinary support, but credit vulnerability becomes more relevant as the environment normalizes and as higher rates pressure debt service capacity. Liquidity risk, while initially a central concern, remained at system level due to strong buffers and facilities, reaffirming the role of standardized liquidity metrics, e.g., LCR and NSFR, as resilience indicators. Market risk spiked sharply during the first wave and then normalized as policy stabilized conditions, illustrating how quickly valuation and volatility regimes can change during a shock. Finally, operational risk gained structural importance: accelerated digitization increased dependence on technology, third parties, e.g. cloud services, and secure remote access, making governance and control effectiveness central rather than a secondary issue.

Taken together, the thesis supports a balanced conclusion: European banks were resilient enough to sustain intermediation during COVID, largely because they entered the shock with stronger buffers than in past crises and because the policy regime acted rapidly to avoid financial amplification. Yet, the episode also raised the structural cost on technology, operational resilience, and disciplined risk governance, while making profitability more sensitive to the interaction between monetary policy transmission, deposit franchise dynamics, and political constraints. Looking ahead, the results point to a handful of practical questions for both bank management and policymakers, and, importantly, to the direction of the answers. If rates stabilise or start to fall, margins are likely to compress as asset yields reprice downward faster than many operating costs adjust; sustaining profitability will therefore depend less on the rate environment and more on cost efficiency, fee income depth, and disciplined balance-sheet allocation. Deposit costs are also likely to keep normalizing; as savers compare rates more actively and switching becomes easier, often through digital channels, banks will face greater pressure to remunerate deposits more competitively, making funding costs less “sticky” than during the initial repricing phase. On the asset side, the key question is whether the post-support, higher-rate regime generates delayed credit stress in pockets of portfolios, i.e. SMEs, commercial real estate, and other rate-sensitive segments. The most likely outcome is sectoral divergence rather than a system-wide deterioration: aggregate ratios may remain stable while vulnerabilities concentrate in specific borrower types and geographies, requiring tighter monitoring and more granular risk steering. Operationally, as digital banking becomes the default, incumbents can deliver end-to-end digital journeys, but only if they treat technology change as a resilience program as much as a growth program, meaning stronger controls over cyber risk, third-party dependencies, and system continuity become non-negotiable as AI and open-banking connectivity expand.

Finally, the pandemic raises a policy design question: should crisis-era tools such as distribution restrictions and supervisory flexibility remain exceptional, or evolve into a clearer countercyclical playbook? The likely answer is a case-by-case framework: emergency measures can be justified when system-wide stability is at stake, but they work best when they are transparent, time-bound, and paired with clear criteria, especially in a future where shocks may come from different sources than the geopolitics, cyber incidents, or climate-related disruption rather than a traditional credit cycle.

In short, the thesis concludes that COVID-19 was a defining episode not because it broke European banking, but because it validated resilience while accelerating structural change. The sector’s next challenge is to convert that accelerated change into durable competitiveness and stability in a less supportive, more politically and macro-financially complex environment.

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7. Bibliography

- Cariola, G. (2023). *Trade in the time of COVID-19: An empirical analysis based on Italian data* (Temi di Discussione No. 1427). Banca d'Italia.
- Barbero, J., de Lucio, J. J., & Rodríguez-Crespo, E. (2021). Effects of COVID-19 on trade flows: Measuring their impact on real time data. *PLOS ONE*, 16(10), e0258356. doi:10.1371/journal.pone.0258356
- Kejžar, K. Z., Velić, A., & Damijan, J. P. (2022). COVID-19, trade collapse and GVC linkages: European experience. *The World Economy*, 45(11), 3475–3506. doi:10.1111/twec.13314
- Hutchinson, J., & Mee, S. (2020). The impact of the ECB's monetary policy measures taken in response to the coronavirus (COVID-19) crisis. *ECB Economic Bulletin*, Issue 5/2020 (Box). European Central Bank.
- Castillo, S., Doménech, R., & Jiménez, M. (2022, February 17). *La política monetaria en la eurozona ante la COVID-19* (Economic analysis report). BBVA Research.
- Brodeur, A., Gray, D., Islam, A., & Bhuiyan, S. (2021). A literature review of the economics of COVID-19. *Journal of Economic Surveys*, 35(4), 1007–1044. doi:10.1111/joes.12423
- Forcellini, M., Vento, G. A., & Gracikova, E. (2026). The impact of Covid-19 on the market volatility: A quantitative analysis of the Italian banking sector. *International Review of Economics & Finance*, 105, 104814. doi:10.1016/j.iref.2025.104814
- Boivin, S., Crotti, M. G., & Malikkidou, D. (2023). *The EU regulatory framework for market risk and prudent valuation: Are the rules too procyclical? Evidence from the COVID-19 pandemic and the 2022 global energy crisis* (EBA Staff Paper Series No. 16). European Banking Authority.
- Agoraki, M.-E. K., Kouretas, G. P., & Nadal De Simone, F. (2025). The performance of the euro area banking system: The pandemic in perspective. *Review of Quantitative Finance and Accounting*, 65, 39–69. doi:10.1007/s11156-023-01180-1
- Miklaszewska, E., Kil, K., & Idzik, M. (2021). How the COVID-19 pandemic affects bank risks and returns: Evidence from EU members in Central, Eastern, and Northern Europe. *Risks*, 9(10), 180. doi:10.3390/risks9100180
- Mare, D. S., & Gramlich, D. (2021). Risk exposures of European cooperative banks: A comparative analysis. *Review of Quantitative Finance and Accounting*, 56(1), 1–23. doi:10.1007/s11156-020-00884-y
- Batten, J. A., Choudhury, T., Kinatader, H., & Wagner, N. F. (2023). Volatility impacts on the European banking sector: GFC and COVID-19. *Annals of Operations Research*, 330, 335–360. doi:10.1007/s10479-022-04523-8
- Duttilo, P., Gattone, S. A., & Di Battista, T. (2021). Volatility modeling: An overview of equity markets in the euro area during COVID-19 pandemic. *Mathematics*, 9(11), 1212. doi:10.3390/math9111212

Baldan, C., Geretto, E., & Zen, F. (2014). *Managing banking risk with the Risk Appetite Framework: A quantitative model for the Italian banking system* (MPRA Paper No. 59504). Munich Personal RePEc Archive.

Tursoy, T. (2018). *Risk management process in banking industry* (MPRA Paper No. 86427). Munich Personal RePEc Archive.

International Monetary Fund. (2024). Maneely, M., & Ratnovski, L. *Bank profits and bank taxes in the EU* (IMF Working Paper 2024/143).

European Parliament. (2025). Pekanov, A., & Schratzenstaller, M. *The taxation of the EU's financial sector: Options and experiences* (Study). doi:10.2861/0446754