INTERNATIONAL MONETARY FUND

Bank Profitability in Europe: Not Here to Stay

Ruo Chen, Vincenzo Guzzo, Fazurin Jamaludin,
Adil Mohommad, Ritong Qu, and Yueshu Zhao

WP/24/142

2024
JUL

WORKING PAPER

 WP/24/142

IMF Working Paper
European Department

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Authorized for distribution by Oya Celasun
July 2024

ABSTRACT: Slower passthrough of policy interest rate hikes to deposit rates relative to their loan rates has led to sharply wider bank net interest margins. Combined with resilient asset quality, wider net interest margins supported record profits for European banks in 2023. Drawing on historical data from the balance sheets and income statements of over 2,500 European banks, this paper shows that abnormally high profits are expected to fade soon as interest income will decline, once policy rates start being lowered, while higher impairment costs historically have weighed on profits with a lag. Moreover, a number of structural factors that have eroded the performance of European banks in the past two decades have largely remained unaddressed and will continue being a drag on profits and capital. Therefore, policymakers should encourage banks to preserve capital buffers and build resilience to future shocks, while exercising caution when considering taxes on profits or other measures that could divert potential sources of capital from banks.

JEL Classification Numbers:	E51, G21, G28, H25, K34
Keywords:	European banks; bank profits; interest rate margins; asset quality; bank capital; bank taxation.
Author's E-Mail Address:	rchen@imf.org, vguzzo@imf.org, fjamaludin@imf.org, amohammad@imf.org, rqu@imf.org, yzhao4@imf.org

* The authors would like to thank Helge Berger, Pelin Berkmen, Ashok Vir Bhatia, Luis Brandao Marques, Oya Celasun, Diego Alejandro Cerdeiro, Stephan Danninger, Romain Duval, Borja Gracia, Shakill Hassan, Mark Horton, Bingjie Hu, Kotaro Ishi, Ana Lariau, Mindaugas Leika, Florian Misch, Carlo Pizzinelli, Lev Ratnovski, Christiane Roehler, Yu Shi, James Walsh, Torsten Wezel, and seminar participants at the European Department of the IMF for useful comments. All errors are ours.

WORKING PAPERS

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Contents

Glossary

ECB	European Central Bank
GFC	Global Financial Crisis
GSIB	Global Systemically Important Banks
NPL	Non-Performing Loans
PP	Percentage point
ROA	Return on Assets
ROE	Return on Equity
RWA	Risk-Weighted Assets
SSM	Single Supervisory Mechanism

Executive Summary

With rapid hikes in monetary policy rates transmitting more slowly to banks deposit rates than their loan rates, European bank net interest margins picked up sharply in 2023. Combined with resilient asset quality, wider net interest margins supported record profits for European banks, helping them recover back to levels last seen in the years preceding the Global Financial Crisis. In response to the boom in bank profits, several policy initiatives were introduced with the aim of securing public funds, potentially diverting future sources of capital from banks. These measures included windfall taxes on excess profits or other taxes on banks, lower remuneration on minimum reserves, as well as other initiatives encouraging higher, taxable dividend payouts.

Drawing on historical data from the balance sheets and income statements of over 2,500 European banks, this paper projects that abnormally high profits will start fading soon as interest income declines with lower policy rates, while higher impairment costs start weighing on profits with a usual lag. In the meantime, several structural factors that have weighed on the performance of European banks, such as low operational cost efficiency and limited adoption of digital technologies in the past two decades, have largely remained unaddressed and will continue being a drag on profits and capital once the boom in net interest margins dissipates. Scenario analysis indicates that almost 90 percent of the increase in net interest margins recorded in 2023 is projected to fade on relatively high short-term sovereign yields and a gradually steepening yield curve, with only a small residual amount persisting over 2024-26.

Therefore, any policy response to the surge in bank profitability must consider that the profits are likely temporary, largely a side effect of the rapid rise in monetary policy interest rates from negative levels where they stood for eight years up until mid-2022, and limited competition among European banks for deposits (culminating in sluggish deposit rates) in a period of high levels of bank liquidity. Policymakers should encourage banks to build resilience to future shocks. The risk of higher [than expected] non-performing loans going forward suggests that in many cases these funds could be channeled more appropriately towards bank capital, with the need to preserve or rebuild buffers varying significantly across countries or individual banks. Addressing the structural factors weighing on bank profitability, including low levels of cost efficiency and, in some cases, overly extended branch networks, remain paramount to bolster the long-run stability of Europe’s banking system and make sure that it can adequately support activity with healthy credit provision. Further progress towards a banking union within the EU could help bring about significant efficiency gains.

Introduction

Many European banks have seen soaring profits in 2023 as higher policy interest rates boosted lenders' net interest margins—defined as interest earnings on assets minus interest payments on liabilities (see Figures 1 and 2). The boom in profits has triggered policy initiatives including windfall taxes on excess profits or other new taxes on banks, zero remuneration on minimum reserves (with hikes to unremunerated reserve requirements as a possible next step), as well as other initiatives encouraging higher, taxable, dividend payouts (see Maneely and Ratnovski (2024) for a review and discussion of new taxes introduced for banks in the EU in 2023, also summarized in Box 1 in this paper).

Figure 1: European Banks' Return on Assets

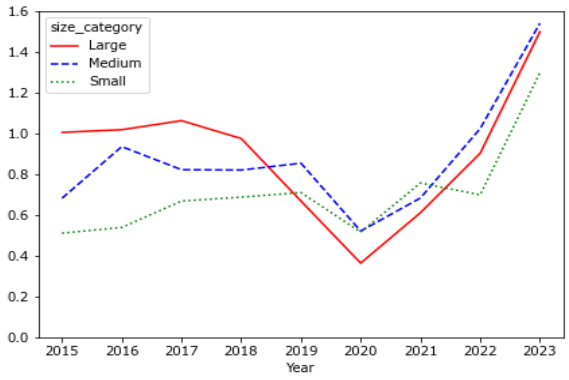
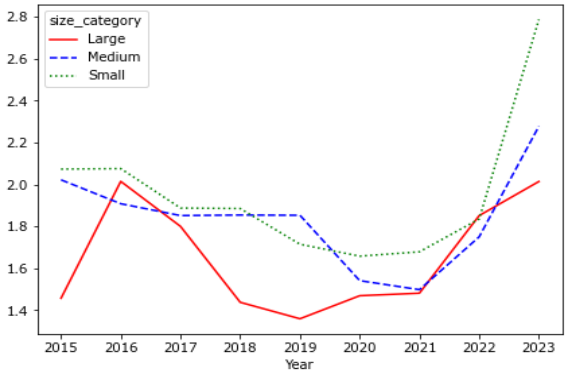


Figure 2: European Banks' Net Interest Margins



Sources: Fitch Connect and IMF staff calculations.

Against this backdrop, this paper examines the main drivers of the recent surge in bank profits in Europe, differentiating between cyclical and structural factors. It also examines the key long-run trends for bank profitability in Europe and how they compare to those of banks in other regions, such as the United States or Canada. Higher interest rates have supported banks' maturity transformation and led to wider net interest margins, especially since increases in policy interest rates have been passed on more slowly to bank deposit rates than to loan rates. However, this paper finds that the resulting rise in profits is largely cyclical. Going forward, banks will also face growing credit risk as higher lending rates affect borrowers' ability to service their debt and weaken asset quality over time. Once central banks start lowering policy rates, pressure on borrowers' ability to service their debt will likely subside. However, bank net interest margins will also decline, as deposit rates, which lagged loan rates in the monetary policy tightening cycle, will fall by a smaller extent. Finally, most structural factors that have eroded the profitability of European banks in the past two decades, including overcapacity in certain markets and low operational efficiency, have been largely left unaddressed and will continue weighing on banks' performance. Meanwhile, new, one-off taxes or other measures on bank profits are set to reduce banks' ability to extend credit or absorb shocks on capital, with the need to preserve or rebuild buffers varying significantly across countries or individual banks.

The remainder of this paper is organized as follows. Section II reviews the vast literature on bank profitability and lays out the conceptual framework for the empirical analysis of its potential determinants. Section III introduces the new comprehensive dataset used in this paper. Section IV highlights some short- and long-term trends in European bank profits, as well as a comparison with profits of US and Canadian banks. Section V explores the drivers of bank profits through regression analysis, emphasizing differences between cyclical and structural factors. Section VI closes with a few key takeaways and policy implications.

Box 1. New bank taxes in the EU[1]

Almost half of EU countries (12 out of 27) have introduced new taxes on banks since 2023. There is significant heterogeneity in terms of the adopted tax base (liabilities, assets, (excess) profits, (excess) net interest income, or (excess) net revenue), the tax rate, the duration, the overall tax revenue generated, and the optionality to replace the tax with capital-raising measures. Box Table 1 summarizes the new bank taxes for each country, the main design features, and the estimated impact on tax revenue, which ranges from 0.02 percent of risk-weighted assets (RWA) (The Netherlands) to 1 percent (for Lithuania's levy).

Box Table 1: Summary of new bank taxes, main design features and estimated impact on revenue.

Country	Tax base	Tax duration	Tax revenue, EUR million	Tax revenue, percent of RWA	Source for tax revenue
Belgium	Liabilities	Permanent	150	0.04	Desk/News
The Netherlands	Liabilities	Permanent	150	0.02	Desk/News
Slovenia	Assets	5 years	111	0.3	Own calculations
Estonia	Profits	2 years	60	0.3	Desk/News
Latvia	Profits	1 year	140	0.9	Desk/News
Lithuania	NII *	1 year and 7.5 months	250	1.2	Desk/News
Czech Republic	Profits *	3 years	600	0.5	Own calculations
Romania	Net Revenue	Permanent	160	0.2	Desk/News
Slovakia	Profits	3 years (decreasing)	340	0.8	Desk/News
Hungary	Net Revenue	2-3 years	640	0.6	Desk/News
Spain	Net Revenue *	3 years	1200	0.1	Own calculations
Italy**	NII *	1 year	3000	0.25	Desk/News

* = "excess"
** = option to allocate to capital

[1] This box is based on Maneely and Ratnovski (2024).

Conceptual Framework and Literature Review

The drivers of bank profits can be grouped into three broad categories: (i) common macroeconomic or cyclical factors that influence all banks in the same direction; (ii) bank-specific factors mainly reflecting bank management's operational decisions with implications for bank efficiency, risk management, and business models; and (iii) structural variables, including concentration/competition in the banking sector, excess banking capacity in terms of both the size of the sector relative to the economy and the intensity of physical banking infrastructure. While there are interactions and overlaps across categories—for instance, asset quality could be seen as a bank-specific driver as well as a cyclical one—these three categories provide a useful framework for identifying the main drivers of profitability.

In principle, the relationship between bank profits and their key drivers can be summarized through the following channels:

Macroeconomic/Cyclical Factors

- Stronger *GDP growth* creates a favorable economic environment that can stimulate lending activity, increase interest income, generate fee revenue, and improve asset quality, all of which can lead to higher bank profits.
- Banks gain net interest margins from collecting revenue on longer-dated loans and securities and paying expense on shorter-dated deposits. These margins typically increase as policy rates rise or the yield curve steepens, as returns on floating rate assets rise faster than payments on relatively stickier deposits. This effect is particularly strong when interest rates become less negative or switch from being negative to positive. By contrast, because deposit rates generally do not turn negative (at least not for household deposits), banks' margin will be compressed when policy rates become negative. So, higher policy rates and a steeper yield curve tend to be associated with higher net interest margins for banks.
- Net non-interest income tends to vary inversely with net interest income. This is especially the case when net interest income fall and banks hike fees and commissions to make up for the lost revenue. Since net interest income are increasing in interest rates, this entails a negative correlation between net non-interest income and interest rates, especially when interest rates are falling. Note that while fees and commissions play an important role for US banks, there is much more limited evidence supporting this channel for European banks.
- The net impact on profits depends on the sensitivity of all these factors to interest rates and their weights in banks' revenue and expense. However, a large impact of interest rates on net interest margins tend to dominate other effects if interest rates exit negative territory and deposit rates are sticky.

Bank-Specific Factors

- Larger banks--measured by *bank assets*--could have greater market power and bargaining leverage. This can result in higher fees and interest rates charged to customers and lower costs for funding and other resources, contributing to higher profits.
- *Funding costs* are a critical factor in determining bank profitability. For example, deposits, particularly low-cost demand deposits and savings accounts, could entail lower interest rates than wholesale borrowings or capital market financing. Therefore, banks with a higher proportion of low-cost deposits may have a lower cost of funds, leading to higher profitability.
- *Cost efficiency* measures how efficiently a bank manages its operating expenses, including personnel, administrative, and other overhead costs. Lower operating expenses relative to revenue indicate higher cost efficiency, which can directly contribute to higher profits.
- While affected by macroeconomic conditions, *asset quality*--measured by the share of non-performing assets--reflects the effectiveness of credit risk management. Actively monitoring asset quality and maintaining high-quality loan portfolios supports long-term bank profitability.
- A more diverse *business model* enables banks to generate revenue across multiple dimensions, enhance risk mitigation, and improve market competitiveness. All these factors contribute to higher profitability.

Structural Factors

- *Concentration* is a key structural indicator of bank profitability. In highly concentrated banking markets where a few large banks dominate, these banks may have greater market power and pricing control, leading to wider interest rate margins and increased profitability. However, concentrated banking markets can also reduce competition and incentives for innovation, leading to less dynamic profitability. Therefore, the relationship between concentration and profitability typically depends on the balance between market power and competitive intensity.

The above conceptual framework is consistent with the main findings in the recent literature on the key drivers of bank profitability and supports the choice of variables in the empirical models presented in this paper. If some variables discussed below are not included in the empirical analysis, this is largely due to data limitations for the large group of countries covered in this paper. Also, note that the reviewed literature mainly stems from the period of low bank profits which followed the global financial crisis, particularly in the euro area.

Macroeconomic/ Cyclical Factors. Economic growth and interest rates both influence bank profitability.

Higher GDP growth lifts bank profits. Pasiouras and Kosmidou (2007), ECB (2015), Elekdag, Malik, and Mitra (2020), and Belloni, Jarmuzek, and Mylonas (2022) have all shown that strong economic growth tends to boost bank profitability through increased loan demand and higher net interest margins. Elekdag, Malik, and Mitra (2020) find that the impact of an increase in growth can be quite

sizable, with one percentage point (pp) of additional GDP growth raising European banks' return on assets (ROA) by between 15 and 35 basis points (corresponding to about 10 to 20 percent of the standard deviation of ROA between 2007 and 2016). Belloni, Jarmuzek, and Mylonas (2022) find a strong positive effect of growth on the net interest income-to-asset ratio with a coefficient of between 1.4 and 2.2 pp for a one pp increase in growth, and a smaller effect on non-interest income of about half the size.

In contrast, the impact of interest rates and especially of the slope of the yield curve on bank profits is less clear. Borio, Gambacorta, and Hofmann (2017) find a positive relationship between both the level of short-term rates and the slope of the yield curve and bank profitability. This suggests that the positive impact of interest rates on net interest income dominates the negative impact on loan loss provisions and any negative effects on non-interest income. They also find that the effect of an increase in interest rates and a steepening of the yield curve is stronger when the interest rate level is lower, and the slope is flatter. Belloni, Jarmuzek, and Mylonas (2022) find a strong positive effect of short-term rates on the net interest income-to-asset ratio (between 0.4 and 2.3 pp for a one pp change in the short-term rate) and a still positive but smaller coefficient for the yield curve slope (between 0 and 1.6 pp for a one pp change in the slope). However, their analysis also suggests that an increase in long-term rates (and a steepening of the yield curve) lowers non-interest income, thus the net effect on profitability from a steeper yield curve is not clear. Both papers suggest that, over time, unusually low interest rates and an unusually flat term structure erode bank profitability. However, focusing on the period 2000-2016, Altavilla, Boucinha, and Peydró (2018) show that monetary policy easing through a decrease in short-term interest rates and a flattening of the yield curve is not associated with low bank profits once the expected macroeconomic impact from monetary easing is controlled for. They stress that, when evaluating the impact of monetary policy on bank profitability, it is crucial to consider the effects stemming from not only actual but also expected real economic activity, for which they use expected (forecasted) macroeconomic developments and (forward-looking) measures of credit risk. Finally, other work argues that banks have little net exposure to interest rates, both in the US (Kirti (2020) and Drechsler, Savov, and Schnabl (2021)) and Europe (Hoffman et al. (2019)). Kirti (2020) shows that banks actively adjust the structure of their assets to match the interest rate exposure of their liabilities and reduce net exposure.

Bank-Specific Factors. Examining the weak profitability of European banks in the post-GFC period, Detragiache, Tressel, and Turk (2018) find that banks that were more successful at protecting their profits were those having a less pronounced deterioration in loan quality (containing the rise in non-performing loans (NPLs)), a larger improvement in cost efficiency (reducing operational costs), and a more aggressive reduction of assets (maybe reflecting quicker write-offs or disposal of non-core assets). These banks also reduced reliance on wholesale funding more markedly post-GFC, and possibly less profitable activities financed by wholesale funding. Gambacorta, Scatigna, and Yang (2014) show that up to a certain degree, income diversification (defined as non-interest income to total income) has been positively correlated with bank profitability for 98 internationally active banks over the period 1994-2012. Profitability increases up to a 30 percent diversification ratio but declines

thereafter. Exploring the profitability gap between euro area and US global systemically important banks (GSIBs), Martín Fuentes, Di Vito, and Leite (2023) highlight two main factors: i) the higher income from fees and commissions and trading of US GSIBs and ii) the legacy non-performing exposures of euro area GSIBs built up during the GFC, which have driven up impairment and provision expenses beyond that of US peers. Feng and Wang (2018) add that higher funding costs and lower scale efficiency also contributed to the lower profitability of European banks compared to their US peers. ECB (2018) shows that improving cost efficiency through higher IT spending has a positive and significant impact on bank profitability. The analysis also shows that the strength of a bank's balance sheet is an important determinant of IT investment decisions. Chhaidar, Abdelhedi, and Abdelkafi (2023) also find that larger banks benefit more from investment in financial technology.

Structural Factors. The literature indicates that competition and concentration have significantly impacted European banks. Mirzaei, Moore, and Liu (2013) analyze the effects of market structure on bank profitability and financial stability in both advanced and emerging economies before the GFC. They find a negative effect of market concentration on bank profits in emerging economies but an insignificant effect in advanced markets. In general, there are opposing hypotheses on the impact of concentration on bank profitability. High bank concentration may reduce borrowing costs and increase spreads and profits. On the other hand, high market concentration could also capture large branch network size and headcounts and low competitive dynamics, and, therefore, it could be associated with low profits. The ECB (2017 and 2019) stresses that overcapacity and low competitive dynamics are important structural hurdles to bank profitability. In addition, changes to the regulatory framework are also considered structural factors, but studies on their impact on bank profitability are limited, while their effects on banks' activities and stock market returns are inconclusive.

A New Dataset

Most studies on bank profitability in Europe are based on a relatively narrow set of systemic institutions, e.g., typically the 112 banks under the remit of the Single Supervisory Mechanism (SSM) or similar aggregates (Belloni, Jarmuzek and Mylonas (2022), Cheng and Mevis (2019), Detragiache, Tressel, and Turk (2018), and Elekdag, Malik, and Mitra (2020)). To assess the drivers of profits and their potential heterogeneity across countries and types of banks (see Maneely and Ratnovski (2024) for evidence on heterogeneity of European bank profitability), this paper compiles a new much broader dataset encompassing balance sheets and income statements for over 2,500 European banks[2]. The data is sourced from Fitch Connect and generally collected at a quarterly

[2] The database includes also banks outside the European Union. Annex I provides an overview of the geographic distribution of the banks.

frequency. However, data coverage differs significantly across institutions. Most banks only disclose annual balance sheets and income statements. Fewer banks also report semi-annual balance sheets, typically at end-Q2 and year-end. Even fewer release on a quarterly basis. To cover the most extensive sample of banks possible, this paper relies on annual frequency data. However, given the unavailability of 2023 data at the time of writing, recent developments are assessed using 2023 Q3 data, naturally skewing the analysis towards large banks.

Thibaut and Le Mathias (2015) devote a whole paper to data quality and data cleaning procedures for the Bankscope dataset, a predecessor of Fitch Connect. This includes dealing with data comparability, consolidation, duplication of assets or mergers. The authors conclude that, once the information is appropriately treated, the dataset offers good coverage of the European bank system. This paper largely follows the principles outlined in Thibaut and Le Mathias (2015) to clean the dataset (see Box 2).

Box 2. Steps to Clean Fitch Connect Data

1. We confined the market sectors of firms in Fitch Connect to banks while excluding other institutions, e.g., central banks. More specifically, we only included the following market sectors: 'Banks', 'Credit Union', 'Other Banks', 'Retail & Consumer Banks', 'Universal Commercial Banks', 'Trading & Investment Banks', 'Wholesale Commercial Banks', 'Development Banks'.
2. We excluded inflation-adjusted balance sheets.
3. We only included annual balance sheets and income statements, except for the year 2023 for which we featured Q3 data. For most banks, the fiscal year ends in December. Therefore, we identified the year of each balance sheet according to the following rule: if the fiscal year ends in the second half of the calendar year, the year of the balance sheet in question is the same as the fiscal year; conversely, if the fiscal year ends in the first half of the calendar year, the year of a balance sheet is the fiscal year minus one.
4. When multiple balance sheets exist for one year, we only kept consolidated balance sheets when available. Otherwise, we used unconsolidated balance sheets.[3] This step drops around 15 percent of the observations.
5. We dropped balance sheets with statement types of ‘Estimated’, ‘Forecast’, ‘Preliminary’, ‘Partial’ or ‘Pro-forma’ when the balance sheets are annual.
6. Some banks release multiple balance sheets each year following different accounting practices. In these cases, we selected IFRS, if available, or Local GAAP otherwise. For some banks, there are multiple balance sheets each year which are neither IFRS nor Local GAAP. In such cases, we only kept the balance sheet with the accounting system that is most frequently used by the same bank. As of 2022, around 40 percent of banks use IFRS. The rest mainly use Local GAAP.

[3] When analyzing the drivers of profits in the Section “Drivers of bank profitability”, we only use unconsolidated data so that the impact of sovereign yields in one country is confined to institutions that operate in that country.

7. Some banks release multiple balance sheets with different fiscal year end dates within a year (the definition of the year of a balance sheet is defined in step 3). In those cases, we only kept the balance sheets which have the latest fiscal year end-dates within the year.
8. Some banks release multiple balance sheets with different 'Audited/Qualified Flag' within a year. We kept the balance sheets with the highest level 'Audited/Qualified Flag' within the year (the highest level corresponds to 'Unqualified opinion').
9. For some bank-year level observations, there are multiple balance sheets with different 'Fitch Nickname', which uniquely identify a bank's statements with the same type of disclosure, including accounting system, consolidation, inflation adjusted currency, consolidation level etc. We picked the 'Fitch Nickname' that is most frequently used among the 'Fitch Nicknames' available in the latest observation of a bank. In years with multiple balance sheets for a bank, we only kept the reserved 'Fitch Nickname' if available.
10. For some bank-year level observations, there are multiple balance sheets but no balance sheets with the reserved 'Fitch Nickname'. In those cases, we only kept the 'Fitch Nicknames' that are most frequently used among all 'Fitch Nicknames' available in that year.

After implementing all steps above, we ensured that there was only one balance sheet on the firm-year level. The summary statistics of key financial ratios of the annual and Q3 datasets are presented in Annex Table A1 and A2.

A Few Stylized Facts before 2023

It is well documented in the literature that European banks' profitability has been structurally low since the Global Financial Crisis (GFC) (see for instance Detragiache, Tressel, and Turk (2018) and Elekdag, Malik, and Mitra (2020)). Evidence based on our broad dataset of balance sheets and income statements confirms that bank profits dropped sharply after the GFC across a range of metrics. ROA exhibited some modest improvement after 2012, but never recovered anywhere near their pre-GFC levels. Progress was even more limited in terms of return on equity (ROE), for which the downward adjustment was larger and more persistent, reflecting deleveraging and tighter regulatory standards. In terms of size, profitability improved more visibly for large European banks, even though, at least for ROA, the drop during the GFC was larger and the recovery started from a lower level[4] (see Figures 3 and 4).

[4] Banks with total assets exceeding USD 30 billion are classified as large banks; banks with total assets below USD 3 billion are classified as smaller banks; all other banks are classified as medium banks.

Figure 3: European Banks' ROA by Size

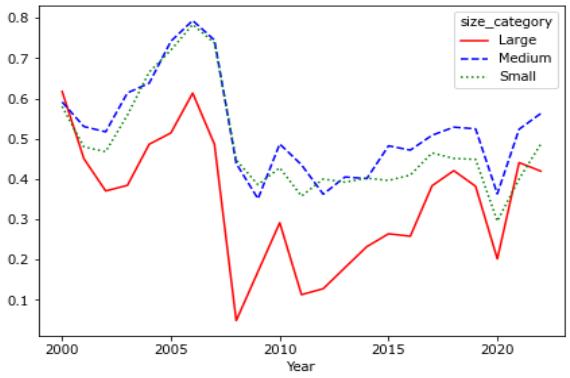
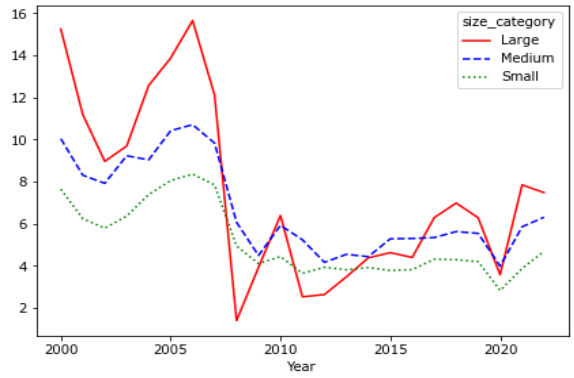


Figure 4: European Banks' ROE by Size



Sources: Fitch Connect and IMF staff calculations.

Banks' profitability varied significantly also across regions. Banks in Emerging and Developing Europe exhibited consistently higher profits, with ROA averaging 1.3 percent during the 2000-22 period, while banks in the euro area and other advanced European countries were much less profitable (at 0.3 percent and 0.4 percent respectively). Because of their larger size, banks in the euro area and advanced Europe drove the general trend of European banks' aggregate profitability. The difference was even more striking in terms of ROE, for which banks from Emerging and Developing Europe showed almost no break following the GFC (see Figure 5 and 6). Country developments (see Figures A1-A11 in the Annex), while highlighting significant heterogeneity across banking systems, broadly confirm these high-level stylized facts.

European banks' ROA was significantly lower than that of their peers in US and Canada. The difference in profitability compared to US banks can be ascribed to higher fees, commissions, and trading income for US banks, as well as the legacy effects from the GFC weighing more heavily on European banks (ECB 2023). Figures 7 and 8 show the asset-weighted average ROA and ROE for European, US, and Canadian banks. European banks exhibited structurally lower profitability already

Figure 5: European Banks' ROA by Regions

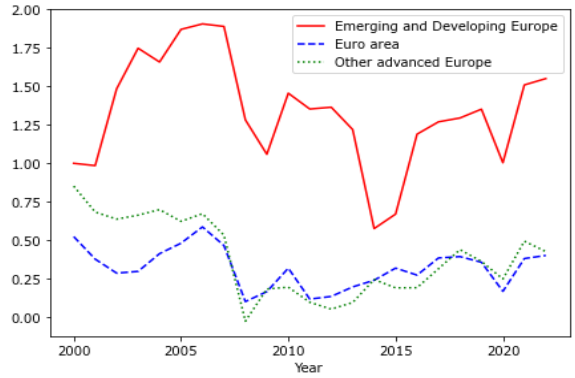


Figure 6: European Banks' ROE by Regions

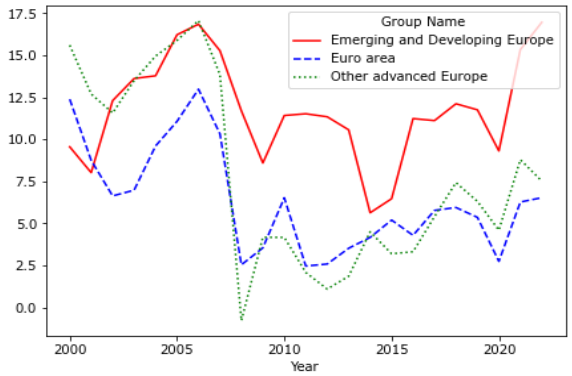


Figure 7: European, US, and Canadian Bank ROA

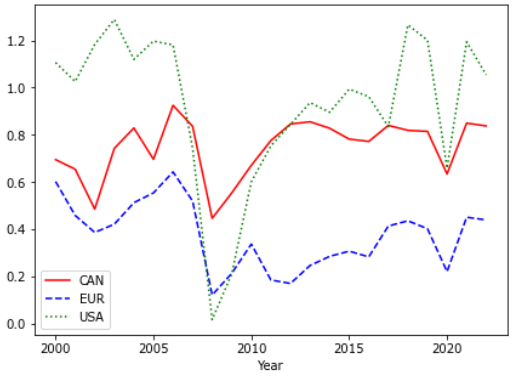
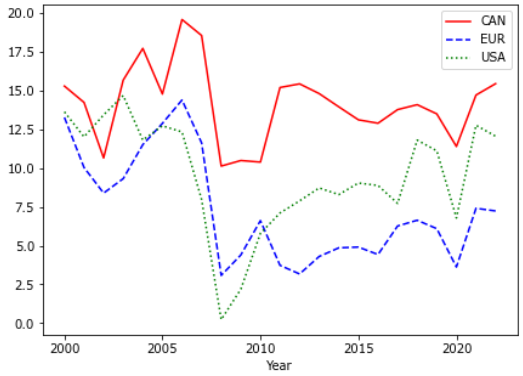


Figure 8: European, US, and Canadian Bank ROE



Sources: Fitch Connect and IMF staff calculations.

Note: "EUR" refers to European countries defined by the following ISO codes: ALB, BLR, BIH, BGR, HUN, KOS, MDA, MNE, MKD, POL, ROU, RUS, SRB, TUR, UKR, AUT, BEL, HRV, CYP, EST, FIN, FRA, DEU, GRC, IRL, ITA, LVA, LTU, LUX, MLT, NLD, PRT, SVK, SVN, ESP, AND, CZE, DNK, ISL, ISR, NOR, SMR, SWE, CHE, GBR.

before the GFC and their profitability recovered much more slowly than US and Canadian banks in the aftermath of the GFC. Despite some modest improvement since 2012, European banks' ROA was still 0.4 percent in 2022, significantly lower than US banks' 1 percent and Canadian banks' 0.8 percent. Structural factors, including low operational cost efficiency, limited adoption of digital technology, and insufficient diversification in target markets and funding sources may have also contributed to these gaps.

Only a few studies within the prolific literature discussing European banks' low profitability touch on the issue of the "appropriate" level of profitability. European Banking Federation (2018) surveyed banks' shareholders and concluded that an ROE from 8 to 10 percent is broadly in line with the cost of equity of European banks. European Central Bank (2015) derived expected equity returns based on CAPM model and publicly traded banks' stock returns, arriving at similar numbers. By this

standard, the average level of profitability recorded in recent years is still significantly low. This makes equity financing more expensive and forces banks to retain a larger share of profits, in turn inhibiting bank expansion and availability of credit to the economy.

Next, we proceed to examine the various components of bank profitability. The ratio of net interest income to total assets was on a steady declining trend since the GFC. The fall was noticeable for small and medium banks, while larger banks exhibited a relatively stable ratio, albeit at a much lower level. Banks of all sizes experienced lower net interest income ratios in 2020-21, before the trend reverted in 2022 as monetary policy started tightening. As for the non-interest income ratio, it was also on a downward path since the GFC for small banks after rising in the years leading up to the crisis. Non-interest income ratios were more stable for medium and large banks, albeit remaining below their pre-GFC levels (see Figures 9 and 10).

Figure 9: European Banks' Net Interest Income to Total Assets

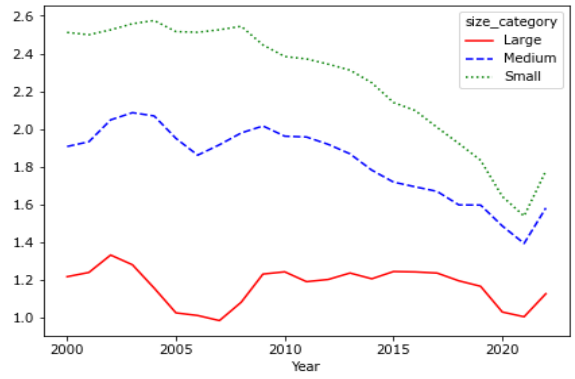
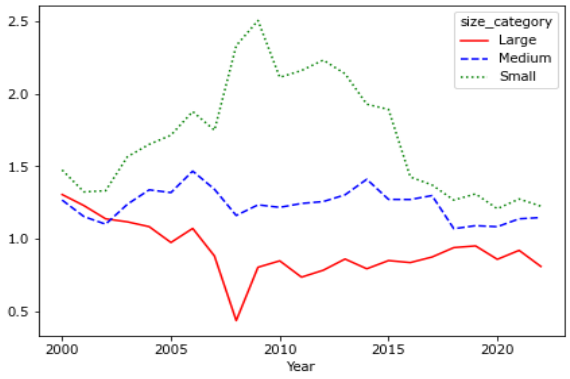


Figure 10: European Banks' Non-Interest Income to Total Assets



Sources: Fitch Connect and IMF staff calculations.

The trend of the non-interest expense ratio generally mirrored that of the non-interest income ratio, indicating cutting less profitable business contributed to consolidation. Figure 11 shows that, after expanding significantly ahead of the GFC, small banks went through an extended phase of sizable consolidation. Medium banks also reduced their costs, but to a smaller extent. In contrast, the non-interest expense ratio of large banks rose for several years after the GFC but started declining in 2018. Despite the sizable cost cutting, the ratio of non-interest expenses to assets for small banks remained one percentage point higher than that of large banks, suggesting further room for consolidation for small banks, and to a lesser extent for medium-sized banks.

The ratios of loan and credit impairment costs to assets also peaked in 2009 and declined afterwards (Figure 12). The GFC-led shock on credit quality, likely compounded by the subsequent shock of the euro area debt crisis, had persistent effects on impairment costs. For large banks, it took almost ten years for the impairment cost to asset ratio to return to its pre-GFC level. Impairment costs were only back to historically low levels just ahead of the COVID-19 pandemic. The impact of

the pandemic on impairment was quickly reverted in 2021, but costs rose again in 2022, especially among small and medium banks, while remaining well below pre-GFC levels.

Figure 11: European Banks' Non-Interest Expense to Total Assets

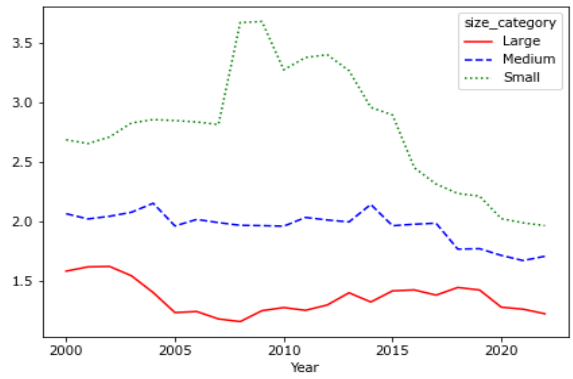
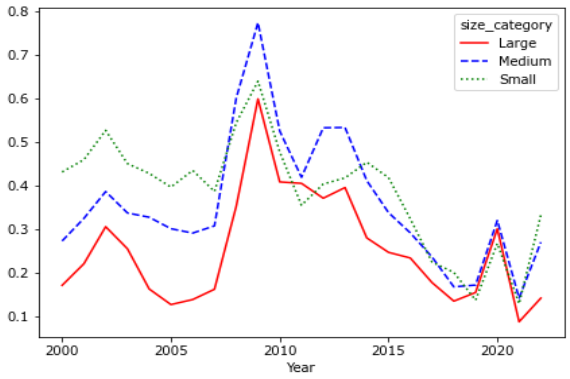


Figure 12: European Banks' Impairment Cost to Total Assets



Sources: Fitch Connect and IMF staff calculations.

To summarize, evidence based on our new broad dataset of balance sheets and income statements confirms that profitability among European banks remained low compared to US and Canadian peers, with the pre-pandemic five-year averages for ROA and ROE, lower than the average in the US by 0.7 and 4.0 percentage points respectively, and 0.4 and 7.8 percentage points below in 2023. The European banks' realized ROE was generally lower than that expected by shareholders, and further adjustments were needed to support profitability (European Banking Federation 2018). After plunging during the GFC, large European banks' ROA recovered more than that for small and medium-sized ones, albeit from lower levels. For small banks, the shock had permanent effects on profitability. Both net interest income and non-interest income were a downward trend after the GFC for medium and especially small banks, as structural factors outweighed the cyclical effect of low interest rates on fees and commission income. Consolidation and reduction in impairment costs also played an important role, although not sufficient to offset the decline in income.

Developments in 2023 and a Counterfactual Exercise

At the time of writing, most banks had not yet published their annual reports for the 2023 fiscal year.[5] Therefore, to be able to assess recent developments, the analysis in this section complements the available information at an annual frequency with 2023Q3 quarterly data published by a subset of

[5] Analysis based on updated 2023 annual data which has now become available for around 1,000 banks (out of around 4,000 banks in 2022), yields qualitatively similar results.

560 banks.[6] Figure 13 shows the median ROA for these banks, grouped according to the same size criteria. The underlying assumption is that the 2023 growth in net income is a good approximation to the realized year-over-year growth rate for 2023Q3. This extrapolation reveals that ROA increased in 2023 across banks of all sizes and exceeded the average levels prevailing during 2015-19 by a wide margin. At the same time, net interest margins, defined as the difference between interest income per earning asset minus interest expense per funding asset, expanded starting from 2022 and accelerated in 2023 (see Figure 14). The expansion in net interest margins is more significant among small banks, which exhibit an increase of more than one percentage point from their 2021 level. The change is much more limited among large banks, for which it increased by only 0.2 percentage points.

Figure 13: European Banks' ROA through 2023Q3

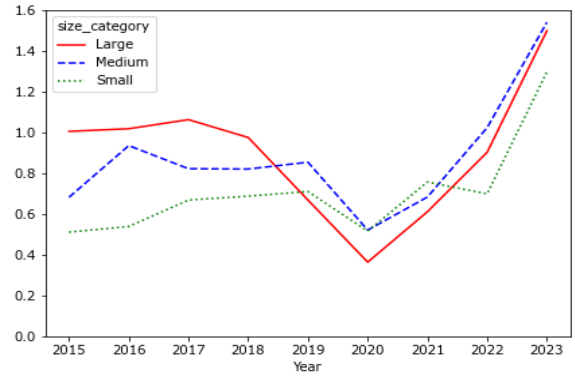
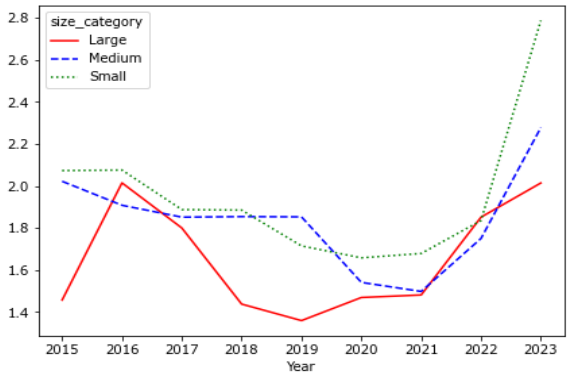


Figure 14: European Banks' Interest Rate Margins through 2023Q3



Sources: Fitch Connect and IMF staff calculations.

To evaluate to what extent the expansion in net interest margins explains the recent surge in bank profits, we analyze a counterfactual scenario whereby the 2022 and 2023 net interest margins of each individual bank equal to the average margins during the 5-year period between 2017 to 2021. We specify the average-margin scenario by varying the funding cost as follows:

$$Deposit\ yield^{*}_{2023} = Asset\ yield_{2023} - Average(Interest\ margin_{2017:2021})$$

$$Deposit\ yield^{*}_{2022} = Asset\ yield_{2022} - Average(Interest\ margin_{2017:2021})$$

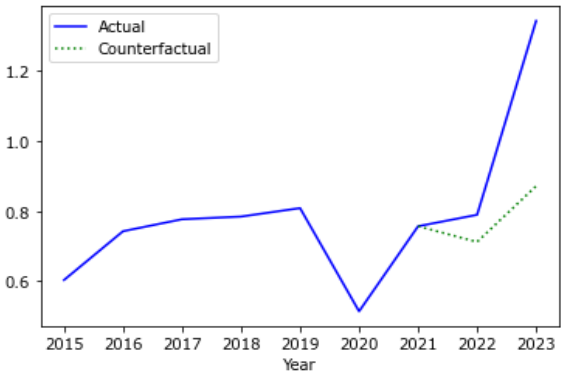
such that the resulting net interest margins equal to the historical average. The results of this simple counterfactual exercise suggest that the excess profits in 2023 can be mostly explained by the expansion in net interest margins, as indicated by Figure 15. In other words, had banks' net interest margins been in line with 2017-21 averages, their ROA would have been much lower in 2022-23. And while medians are largely driven by smaller banks, whose margins had expanded the most, the 2023 counterfactual ROA for large banks does not exceed significantly pre-Covid levels. All in all,

[6] The subsequent analysis uses unconsolidated bank balance sheets to identify the impact of sovereign rates on banks' income.

the increase in net interest margins account for 0.5 of the 0.7 increase in the median ROA across the sample in 2022-23, and for 0.3 of the 0.8 increase in the weighted mean.

To summarize, ROA of European banks increased significantly in the past two years. Much of the 'excess' profits can be explained by the expansion in net interest margins, especially for smaller banks.

Figure 15: European Banks' Cross-Sectional median ROA under No Interest Margin Expansion Counterfactual



Sources: Fitch Connect and IMF staff calculations.

To What Extent Can the High Profits Recorded in 2023 Be Sustained Going Forward?

Given the significant contribution of the interest margin to the recent rise in profits, a natural question is how persistent high net interest margins will be. To answer this question, we project future paths of net interest margins conditional on sovereign yields. In addition, we investigate how well cyclical, bank-specific, and structural factors can predict historical developments in bank profits. Because profitability will eventually converge to the level implied by fundamentals, the analysis will help us understand whether the high profits recorded in 2023 are just a temporary phenomenon or can be seen as the new norm.

Future paths of net interest margins

We model net interest margins as a function of a short-term sovereign yield and a term premium. Interest rate margins reflect two components: a mark-up on short-term rates that is inversely related to the market power of banks, and a term premium due to the maturity mismatch between banks' assets and liabilities. Because deposit rates generally do not turn negative (at least not for household retail deposits), banks' interest rate margins will be compressed when policy rates are low. Net interest margins are therefore more sensitive to changes in short-term rates when interest rates are close to the lower bound. Also, net interest margins of banks financed primarily by retail deposits are more sensitive to changes in short-term rates, because of the sluggishness of deposit rates compared to other forms of funding. Therefore, we include in our baseline specification two

interaction terms: a dummy variable capturing the years in which the 2-year sovereign yield of the country is negative and a bank-specific ratio of customer deposits to total funding (with the median ratio being around 77 percent). The following expression describes a panel regression with fixed effects and relevant parameter estimates while standard errors are in parentheses:

$$\begin{aligned}\text{Interest Margin}_{i,t} =& \alpha_i + \left[\underset{(0.02)}{0.02} + \underset{(0.08)}{0.20} I(\text{Yield2Y}_{c(i),t} < 0) + \underset{(0.02)}{0.13}\text{Customer deposit}_{i,t}\right]\text{Yield2Y}_{c(i),t} \\ &+ \underset{(0.07)}{0.11} \cdot \text{Term Spread}_{10-2\text{Y},c(i),t} + \varepsilon_{i,t}\end{aligned}$$

As expected, net interest margins are a concave function of the country-level 2-year sovereign yield as implied by the positive coefficient of the negative yield dummy. Once monetary policy exits the negative rates regime, the sensitivity of net interest margins to the 2-year sovereign yield and the term spread are both around 0.1, though the latter estimate has large uncertainty bands.

Having established the relation between net interest margins and sovereign yields, we generate a forecast of net interest margins conditional on the expected path of sovereign yields. We use the October 2023 WEO forecast for German short- and long-term government bond yields, and, for simplicity, assume for the yields of the other countries identical changes to those expected for German sovereign yields.[7] Figure 16 shows the cross-sectional median of European 2-year sovereign yields and 10-2-year sovereign yield curves. The dashed blue lines indicate the assumed path for future sovereign yields and yield curves. In the baseline scenario, short-term yields are assumed to remain elevated in 2024 before easing gradually in 2025 and 2026. At the same time, the yield curve is expected to steepen by around the same amount.

Figure 17 shows the path of the median model-implied net interest margin during 2024-26, conditional on the assumed path for sovereign yields and yield curves. The grey area indicates the projection period. A significant share of the increase in net interest margins recorded in 2023 is projected to fade, with only a residual amounting to 200 basis points extending over 2024-26 on relatively high short-term sovereign yield (compared to 2015-21), and a gradually steepening yield curve. The projected net interest margin by 2026 would be 2.1 percent, slightly higher than the average interest margin of 1.9 percent from 2015 to 2019.

[7] This assumption abstracts from diverging developments of risk premia across European sovereign yields.

Figure 16: European Banks' Assumed Path for Yields and Yield Curves

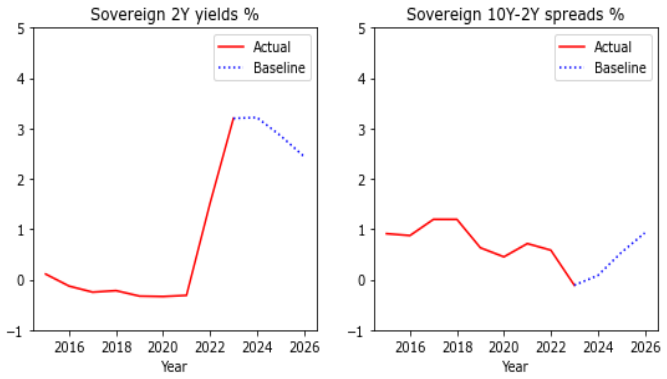
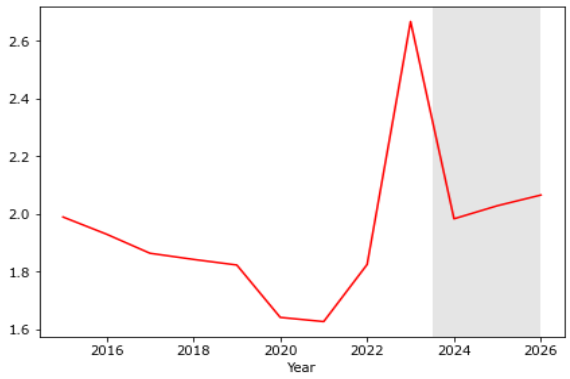


Figure 17: European Banks' Actual/Projected Interest Margin



Sources: Fitch Connect and IMF staff calculations.

Drivers of Bank Profitability

Next, we try to predict banks' ROA and its components based on cyclical, bank-specific and structural drivers.[8] Results suggest that absent major changes in fundamentals, the higher profits recorded in 2023 are unlikely to persist. Table 1 lists dependent variables and groups of different predictors. The dependent variables are regressed against lagged fundamentals with bank-specific fixed effects. To identify the marginal contribution of cyclical variables to future income and expense, we experiment with two sets of predictors, one excluding cyclical variables and one encompassing the whole set of dependent variables. Table 2 shows the resulting model estimates under different lag structures. Panel A shows results with 1-year lags, while panel B shows results with 2-year lags.[9]

Table 1. Dependent and Independent Variables

Dependent variables[1]	Cyclical variables	Bank-Specific variables	Structural variables
ROA	Real GDP growth	Log assets	Concentration
Net interest income	Sovereign yield 2y	Equity-to-assets	Branches to total asset[2]
Noninterest income	Sovereign spread 10-2y	NPL ratio	Employees to total asset[2]
Impairment income		Cost-to-income	
Noninterest expense		Loans-to-assets	
		Deposit-to-assets	
		Interest income to revenue	

[1] With the exception of ROA, all dependend variables are divideded by total assets.
[2] The data availability of the number of branches and the number of employees are more limited than other variables. Including the two variables reduces total observations from 13,201 to 1,796. We therefore only include the panel regression analysis with those two variables in the annex.

[8] The set up is broadly in line with that proposed by Elekdag, Malik, and Mitra (2020).
[9] Annex Table A3 shows results that also include the number of branches and the number of employees per total assets as predictors.

It is interesting to note that the coefficients of the 2-year sovereign yield term on ROA is slightly negative and statistically insignificant. The estimates seem at odds with the recent experience discussed in previous sections, whereby bank profits surged as monetary policy tightened. However, historical experience shows that the positive impact of higher interest rates on net interest margins is largely offset by higher impairment cost: columns 4 and 8 in the same table show that a one pp increase in 2-year sovereign yields raises the ratio of net interest margins to total assets by around 9 basis points, but also raises the ratio of impairment cost to total assets by 7 basis points (Table 2, Panel A). Parameter estimates under the assumption of a two-year lag structure show similar patterns, with the net impact of short-term interest rates on bank profits close to zero. In other words, the exceptional bank profits recorded in 2022 and 2023 are not only driven by higher net interest

Table 2: Regressed Profit and Components against Lagged Variables

Panel A: 1-year Lags

	ROA		Net interest income		Noninterest income		Impairment cost		Noninterest expense	
Log assets	-0.0014**	-0.0011	-0.0043***	-0.0025***	-0.0027***	-0.0024***	0.0005	0.0012*	-0.0053***	-0.0043***
	(0.0006)	(0.0008)	(0.0009)	(0.0006)	(0.0008)	(0.0004)	(0.0003)	(0.0006)	(0.0011)	(0.0006)
Equity-to-assets	0.0101	0.0099	0.0152***	0.0215***	0.0026	0.0054	-0.0093*	-0.0047	0.0177***	0.0222***
	(0.0063)	(0.0061)	(0.0036)	(0.0036)	(0.0039)	(0.0043)	(0.0053)	(0.0041)	(0.0033)	(0.0028)
NPL ratio	-0.0317***	-0.0298***	-0.0071	-0.0034	0.0110***	0.0095***	0.0397***	0.0387***	0.0038	0.0055**
	(0.0059)	(0.0054)	(0.0046)	(0.0024)	(0.0015)	(0.0014)	(0.0051)	(0.0055)	(0.0036)	(0.0025)
Cost-to-income	-0.0095***	-0.0092***	-0.0095***	-0.0079***	-0.0035**	-0.0034***	-0.0041***	-0.0037***	0.0042***	0.0050***
	(0.0006)	(0.0005)	(0.0006)	(0.0008)	(0.0014)	(0.0012)	(0.0008)	(0.0011)	(0.0007)	(0.0007)
Loans-to-asset	-0.0037***	-0.0030***	0.0063***	0.0048***	0.0021**	0.0005	0.0086***	0.0065***	0.0029***	0.0014*
	(0.0009)	(0.0006)	(0.0015)	(0.0010)	(0.0009)	(0.0010)	(0.0014)	(0.0015)	(0.0010)	(0.0008)
Deposit-to-assets	0.0058***	0.0047***	0.0054**	0.0078***	-0.0019	0.0008	-0.0092***	-0.0056**	0.0062***	0.0085***
	(0.0014)	(0.0007)	(0.0023)	(0.0010)	(0.0019)	(0.0023)	(0.0023)	(0.0023)	(0.0019)	(0.0010)
Interest income-to-revenue	0.0013	0.0011	0.0171***	0.0130***	-0.0163***	-0.0177***	-0.0001	-0.0025	-0.0011	-0.0039***
	(0.0011)	(0.0012)	(0.0011)	(0.0014)	(0.0013)	(0.0013)	(0.0017)	(0.0016)	(0.0008)	(0.0010)
Concentration	-0.0257**	-0.0317**	-0.0879***	-0.0796***	0.0194	0.0316***	0.0108	0.0270*	-0.0418	-0.0310
	(0.0128)	(0.0146)	(0.0277)	(0.0254)	(0.0120)	(0.0106)	(0.0146)	(0.0158)	(0.0267)	(0.0223)
Real GDP growth		0.0141**		0.0253***		-0.0108***		-0.0087*		0.0033***
		(0.0056)		(0.0056)		(0.0035)		(0.0046)		(0.0011)
Sovereign yield 2y		-0.0069		0.0887***		0.0449***		0.0700***		0.0658***
		(0.0149)		(0.0250)		(0.0146)		(0.0119)		(0.0171)
Sovereign spread 10-2y		-0.0576*		0.0032		0.0921***		0.1086***		0.0304
		(0.0296)		(0.0687)		(0.0269)		(0.0269)		(0.0455)

Notes: All independent variables are lagged by 1 year. With the exception of ROA, all dependend variables are divideded by total assets.

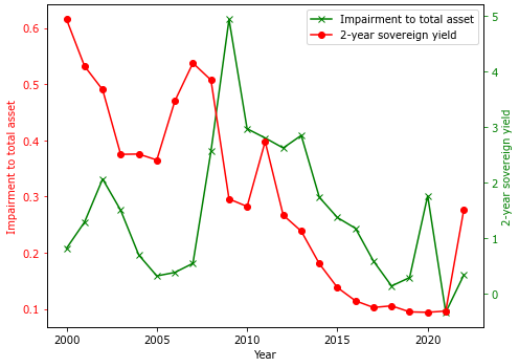
Panel B: 2-year Lags

	ROA		Net interest income		Noninterest income		Impairment cost		Noninterest expense	
Log assets	-0.0020***	-0.0023***	-0.0034***	-0.0025***	-0.0026***	-0.0019***	0.0015***	0.0027***	-0.0046***	-0.0041***
	(0.0007)	(0.0005)	(0.0013)	(0.0005)	(0.0006)	(0.0004)	(0.0002)	(0.0003)	(0.0011)	(0.0005)
Equity-to-assets	0.0219**	0.0204*	0.0156	0.0207*	0.0048	0.0100	-0.0027	0.0053	-0.0003	0.0030
	(0.0105)	(0.0121)	(0.0104)	(0.0118)	(0.0115)	(0.0105)	(0.0042)	(0.0035)	(0.0132)	(0.0102)
NPL ratio	-0.0243***	-0.0248***	-0.0080**	-0.0048	0.0043***	0.0041***	0.0228***	0.0239***	0.0067***	0.0089***
	(0.0071)	(0.0073)	(0.0039)	(0.0038)	(0.0015)	(0.0015)	(0.0063)	(0.0061)	(0.0020)	(0.0018)
Cost-to-income	-0.0040**	-0.0042***	-0.0047**	-0.0041**	-0.0001	0.0002	-0.0015**	-0.0009	0.0040***	0.0043***
	(0.0017)	(0.0016)	(0.0021)	(0.0018)	(0.0005)	(0.0004)	(0.0006)	(0.0007)	(0.0015)	(0.0014)
Loans-to-assets	-0.0067***	-0.0063***	0.0019	0.0004	0.0010	-0.0009	0.0113***	0.0086***	-0.0012	-0.0021
	(0.0011)	(0.0005)	(0.0018)	(0.0012)	(0.0016)	(0.0022)	(0.0014)	(0.0007)	(0.0017)	(0.0014)
Deposit-to-assets	0.0061***	0.0051**	0.0039	0.0074***	-0.0056***	-0.0014	-0.0108***	-0.0048***	0.0030	0.0051***
	(0.0014)	(0.0023)	(0.0026)	(0.0010)	(0.0018)	(0.0016)	(0.0017)	(0.0011)	(0.0028)	(0.0012)
Interest income-to-revenue	0.0012	0.0017	0.0096***	0.0074***	-0.0073***	-0.0087***	-9.996e-05	-0.0027**	0.0012	-0.0002
	(0.0019)	(0.0016)	(0.0027)	(0.0021)	(0.0010)	(0.0010)	(0.0008)	(0.0013)	(0.0013)	(0.0011)
Concentration	-0.0129	-0.0166	-0.1518**	-0.1417**	0.0882***	0.0993***	0.0240	0.0418	-0.0673*	-0.0608*
	(0.0197)	(0.0258)	(0.0591)	(0.0570)	(0.0194)	(0.0225)	(0.0216)	(0.0286)	(0.0374)	(0.0355)
Real GDP growth		1.996e-05		-0.0118**		0.0003		-0.0022		-0.0075
		(0.0026)		(0.0052)		(0.0024)		(0.0047)		(0.0058)
Soveirign yield 2y		-0.0224		0.0830*		0.0796***		0.1231***		0.0515**
		(0.0331)		(0.0462)		(0.0146)		(0.0330)		(0.0252)
Soveirign spread 10-2y		-0.0227		0.0452		0.1637***		0.1905***		0.0181
		(0.0485)		(0.0800)		(0.0341)		(0.0631)		(0.0487)

Notes: All independent variables are lagged by 2 years. With the exception of ROA, all dependend variables are divideded by total assets.

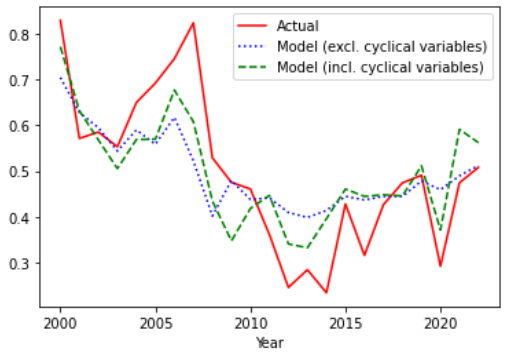
margins as policy rates increased sharply from the lower bound, but also by resilient asset quality which so far has withstood the test of high interest rates, especially among larger banks. That said, going forward there is significant uncertainty about banks' asset quality, which in turn depends on the resilience of the labor market and corporate balance sheets. Figure 18 shows the asset-weighted average of banks' ratio of impairment cost to total assets and the historical cross-country median of 2-year sovereign yields. During 2000-20, there are only two monetary policy tightening cycles, with short-term yields peaking in 2000-01 and again in 2007-08. In both cases, the impairment cost ratio peaked two years after the peak in short-term yields, albeit at a much higher level following the GFC. Therefore, even under the current market expectation of monetary policy easing in 2024, banks' impairment costs will likely continue to increase, offsetting the gains from net interest margins discussed in the previous section.

Figure 18: Impairment Cost to Total Asset Ratio and Sovereign Yields



Sources: Fitch Connect and IMF staff calculations.

Figure 19: Model-Implied Expected ROA



Sources: Fitch Connect and IMF staff calculations.

Reflecting all the dynamics described above, the model shows that banks' expected ROA is stable, lending support to the notion that the recent surge is profits is likely temporary. Figure 19 plots the model implied one-year ahead expected and realized ROA. The blue dotted line represents the expected ROA conditional on bank-specific and structural variables; the green dashed line represents the expected ROA conditional on the whole set of dependent variables, thus including cyclical drivers of bank profitability. The gap between the expected ROA in the two models captures the additional information provided by the cyclical variables. The blue dotted line shows a stable and gradually increasing trend since 2013 indicating mildly improving fundamentals, although well below their pre-GFC levels. The green line is more volatile, largely exceeding the level of the blue line in 2021 and 2022, as cyclical tailwinds boosted bank profits above their long-term fundamental values. The 2023 surge in bank profits is likely a temporary phenomenon as opposed to a new norm, as also suggested by the counterfactual exercise in the previous section.

Conclusions and Policy Implications

The surge in profits recorded by European banks in 2022–23 have been an exceptional event, driven by a sharp increase in net interest margins. A counterfactual examination suggests that historical levels of net interest margins would have yielded much more modest profits. Strong profits have been supported by the combination of two important factors: (i) the slower response of deposit rates to increasing policy rates (relative to loan rates), which pushed up banks' net interest margins; and (ii) the resilience of households and NFC balance sheets to external shocks on the back of robust labor market conditions and solid corporate profitability, both of which held down NPLs.

However, recent bank profits are likely to be temporary. Baseline estimates based on staff assumptions on the direction of interest rates point to a decrease in bank net interest margins in the near term. Under the baseline scenario of a soft-landing (with a further decline in inflation to target and a gradual strengthening of growth to potential), where interest rates ease moderately, bank profits would decline, and asset quality would deteriorate. Historical trends suggest a lag of around two years between the peak in interest rates and the peak in impairment costs. Credit risk, as measured by the implied probability of default of European publicly traded firms, is currently increasing, supporting the case for more compressed bank profits going forward.

Some tentative policy conclusions can be drawn from these findings:

Caution should be exercised in taxing bank profits. While taxing bank profits could be a convenient way to raise fiscal revenue, expectations of rising credit risk suggest that these profits could be used more appropriately to build or preserve capital buffers. The need to build buffers clearly differs significantly across countries or individual banks. It may be less urgent where banks have already channeled profits towards voluntary buffers, but for other banks there may be a more compelling case. Moreover, a hasty imposition of ad hoc taxes on banks' excess profits could dampen investor confidence, raise the cost of equity financing, and potentially inhibit banks' ability to finance the recovery from the current cyclical downturn.

Structural considerations remain key. Not long ago—especially in the period between the GFC and the COVID-19 pandemic— discussions of low European bank profitability were prevalent in the literature (e.g., ECB (2015), (2018), and (2019)). Those earlier concerns appear to have rapidly given way to more sanguine views among some policymakers. However, most of the structural factors that have eroded the profitability of European banks in the past two decades have yet to be addressed and will continue weighing adversely on banks' capital. Since the GFC, fundamentals have not improved enough to drive European bank profits to a level consistent with the compensation demanded by market participants to invest in and hold banks' equity over the medium term. There is significant scope to strengthen bank business models, including through increased diversification in target markets and funding sources, improve cost efficiency, and promote broader adoption of digital technology. Further progress towards a banking union within the EU could help bring about significant efficiency gains.

Annex I. Tables and Figures

Table A1: Summary Statistics of Annual Balance Sheets' Key Indicators

		Total assets 1/			Equity to total asset 2/			ROA 2/			ROE 2/			Net interest income 2/			Noninterest income 2/			Noninterest expense 2/			Impairment cost 2/		
Country	Num. unique entities	20 pct.	median	80 pct.	20 pct.	median	80 pct.	20 pct.	median	80 pct.	20 pct.	median	80 pct.	20 pct.	median	80 pct.	20 pct.	median	80 pct.	20 pct.	median	80 pct.	20 pct.	median	80 pct.
ALB	18	0.09	0.39	1.16	8.52	11.23	16.99	-0.98	0.51	1.43	-6.86	4.53	14.34	2.31	3.14	3.87	0.38	0.70	1.17	1.96	2.61	4.13	0.05	0.50	1.26
AND	7	0.95	2.92	5.75	7.44	10.15	12.49	0.81	1.37	2.56	9.78	13.09	22.54	0.92	1.24	1.47	1.72	2.77	3.79	1.48	2.02	2.63	-0.03	0.07	0.26
AUT	711	0.11	0.30	1.03	6.10	8.98	13.05	0.19	0.43	0.70	2.24	4.69	7.73	1.40	1.81	2.23	0.59	0.79	1.04	1.53	1.91	2.37	-0.05	0.12	0.42
BEL	89	0.43	2.20	15.48	4.23	7.56	12.03	0.15	0.47	1.35	2.03	7.36	14.44	0.79	1.37	2.14	0.00	0.57	2.85	0.85	1.50	3.28	-0.01	0.03	0.21
BGR	30	0.18	0.78	2.79	8.45	11.69	16.83	0.14	0.92	1.75	1.14	7.87	14.86	2.12	3.10	4.81	0.93	1.48	2.57	2.06	2.90	4.86	0.09	0.58	1.60
BIH	33	0.10	0.28	0.75	9.46	13.49	23.30	0.11	0.64	1.30	0.81	4.22	9.75	2.47	3.26	4.32	1.13	1.65	3.36	2.58	3.63	6.12	0.19	0.77	1.48
BLR	33	0.07	0.25	1.86	11.88	17.64	29.21	0.26	1.49	3.16	1.51	8.38	16.54	3.54	5.09	7.51	2.60	4.39	7.24	3.93	5.98	9.60	0.16	0.87	2.08
CHE	593	0.21	0.56	1.90	2.52	6.33	11.47	0.10	0.22	0.61	2.86	4.88	8.00	0.92	1.26	1.62	0.18	0.31	2.91	0.86	1.15	3.09	0.00	0.02	0.23
CYP	29	0.45	1.52	9.84	5.29	7.76	11.14	-0.48	0.55	1.33	-6.41	6.72	19.97	1.48	2.31	3.47	0.42	0.94	1.66	1.29	2.20	3.17	0.04	0.46	1.51
CZE	43	0.64	2.61	9.63	5.14	7.87	12.47	0.25	0.72	1.37	3.35	10.50	16.82	1.11	1.85	2.67	0.30	0.86	1.71	0.82	1.65	2.93	0.00	0.12	0.56
DEU	2501	0.22	0.74	2.64	5.05	7.26	9.95	0.10	0.21	0.37	1.31	2.95	5.43	1.62	2.25	2.67	0.61	0.79	1.08	1.67	2.17	2.70	0.00	0.22	0.57
DNK	141	0.11	0.43	2.43	7.81	12.28	16.68	0.09	0.71	1.44	0.89	6.31	11.25	2.01	3.15	4.18	0.71	1.49	2.23	2.31	3.23	4.15	0.01	0.39	1.14
ESP	250	0.47	3.16	23.71	5.53	7.62	11.05	0.13	0.47	0.93	1.72	6.27	11.61	1.08	1.69	2.55	0.38	0.71	1.28	1.13	1.57	2.34	0.03	0.29	0.64
EST	13	0.16	0.58	6.09	7.33	11.69	19.87	0.32	1.13	2.30	1.94	10.69	18.47	1.50	2.34	4.71	0.65	1.50	2.37	1.40	2.67	5.35	0.00	0.18	1.03
FIN	157	0.11	0.37	3.39	7.65	12.35	17.11	0.30	0.52	0.82	2.53	4.28	7.70	1.14	1.48	1.72	0.41	0.62	1.11	1.14	1.44	1.78	0.00	0.05	0.13
FRA	590	0.60	3.42	18.52	4.56	8.77	14.61	0.19	0.54	1.10	2.70	6.38	12.75	0.66	1.50	2.64	0.58	1.22	2.35	1.06	1.81	3.64	0.00	0.13	0.38
GBR	322	0.35	1.57	16.21	5.02	7.52	14.85	0.05	0.39	0.91	0.56	5.17	11.55	0.93	1.54	2.36	0.09	0.51	1.67	0.90	1.46	3.14	0.00	0.03	0.32
GRC	31	0.65	3.99	69.88	5.43	8.29	17.09	-1.41	0.35	1.13	-7.36	4.59	13.86	1.69	2.32	3.07	0.55	1.03	1.82	1.42	2.19	3.58	0.22	0.61	1.83
HRV	54	0.14	0.31	2.31	7.62	11.75	16.68	0.04	0.71	1.39	0.59	5.68	12.22	2.09	2.81	3.69	0.88	1.38	2.37	2.27	3.24	4.94	0.08	0.49	1.15
HUN	177	0.03	0.12	1.72	5.76	8.40	11.85	-0.50	0.30	1.05	-6.49	3.71	11.96	2.26	3.43	5.02	1.10	2.04	3.15	2.97	5.07	7.14	-0.16	0.18	0.87
IRL	120	0.09	1.98	20.89	5.12	13.44	17.80	0.17	0.67	1.52	2.03	6.26	11.74	0.53	1.89	3.28	0.01	0.09	0.67	0.23	1.73	2.71	-0.22	0.00	0.20
ISL	31	0.05	0.53	8.41	7.45	11.48	17.37	0.37	1.31	2.50	3.92	11.29	21.67	1.83	2.82	3.62	0.92	1.97	4.18	2.12	3.13	4.17	0.08	0.48	1.25
ISR	19	2.85	10.84	59.52	5.35	5.98	7.07	0.34	0.53	0.72	5.29	8.33	11.03	1.71	2.11	2.70	0.85	1.16	1.57	1.86	2.23	2.86	0.09	0.24	0.51
ITA	955	0.15	0.54	2.54	7.05	9.96	14.06	0.12	0.46	0.89	1.31	4.53	8.33	1.68	2.46	3.20	0.62	0.98	1.45	1.79	2.37	3.13	0.13	0.39	0.85
LTU	17	0.18	0.90	5.52	6.87	9.95	12.30	-0.16	0.69	1.24	-1.47	6.14	13.72	1.42	2.25	2.90	0.92	1.45	2.65	1.52	2.74	4.55	0.03	0.28	1.06
LUX	149	0.44	2.05	10.35	3.35	5.88	11.51	0.12	0.42	1.17	2.34	7.65	16.67	0.37	0.77	1.27	0.26	1.07	2.92	0.57	1.28	2.62	-0.01	0.00	0.09
LVA	26	0.17	0.47	2.72	6.89	9.89	14.68	0.00	0.91	1.80	0.00	8.86	18.45	1.24	2.10	3.01	1.24	2.27	3.45	1.76	2.89	4.43	0.00	0.26	0.93
MDA	17	0.04	0.14	0.44	14.66	19.29	31.67	0.84	2.09	3.59	3.50	10.56	17.66	3.05	4.56	6.19	2.11	3.43	5.41	3.25	4.88	7.06	0.00	0.50	1.32
MKD	20	0.06	0.18	0.73	10.23	13.50	23.65	0.08	0.86	1.85	0.36	6.99	12.97	2.75	3.52	4.56	1.10	1.61	2.72	2.69	3.59	5.20	0.11	0.67	1.67
MLT	21	0.25	0.93	3.75	6.41	9.56	20.61	0.41	0.77	1.36	2.85	7.67	13.40	1.11	1.87	2.41	0.04	0.54	1.28	0.37	1.45	1.95	0.00	0.10	0.32
MNE	16	0.06	0.29	0.61	8.77	13.08	20.71	0.08	0.82	1.59	0.66	6.23	13.47	2.33	3.42	4.67	0.67	1.17	2.20	2.67	3.70	5.76	0.13	0.54	1.38
NLD	70	1.41	6.94	35.84	3.52	6.58	11.03	0.10	0.40	0.86	2.10	6.92	11.95	0.56	1.19	1.73	0.14	0.49	1.39	0.55	1.16	2.12	0.00	0.01	0.23
NOR	175	0.26	0.54	3.04	7.58	9.85	12.31	0.51	0.78	1.05	5.30	7.92	10.83	1.65	2.02	2.44	0.31	0.53	0.82	1.16	1.50	1.88	0.00	0.09	0.26
POL	185	0.05	0.15	3.69	7.19	9.28	12.53	0.26	0.58	1.09	2.95	6.27	10.65	2.01	2.74	3.61	0.75	1.12	1.83	2.05	2.75	3.80	0.01	0.24	0.71
PRT	140	0.12	0.29	2.51	6.17	9.33	14.59	0.09	0.41	0.83	0.85	4.29	9.08	1.20	1.78	2.40	0.60	0.87	1.25	1.50	1.96	2.58	-0.08	0.19	0.73
ROU	36	0.21	1.01	4.41	8.55	11.31	18.13	-0.85	0.61	1.77	-7.18	5.30	14.52	2.57	3.39	5.36	0.90	1.80	3.50	2.58	3.99	7.04	0.04	0.59	1.67
RUS	1200	0.02	0.08	0.44	10.32	16.68	31.04	0.30	1.09	2.39	1.62	6.31	14.37	3.17	5.02	7.56	2.35	7.52	23.23	4.37	10.25	27.16	0.00	0.00	1.01
SMR	11	0.29	0.98	1.99	6.03	8.96	13.35	-0.89	0.15	0.56	-8.23	1.56	6.58	0.95	1.49	2.09	0.32	0.65	1.41	1.08	2.03	2.91	0.19	0.49	0.99
SRB	44	0.11	0.39	1.50	13.02	18.72	27.47	-1.70	0.68	2.15	-9.47	3.69	10.98	2.89	4.12	6.15	1.16	2.47	9.02	3.24	5.80	11.15	0.10	0.88	3.06
SVK	25	0.43	1.51	8.14	7.14	9.77	14.27	0.18	0.77	1.36	1.34	8.11	14.28	1.77	2.50	3.32	0.58	1.06	1.60	1.72	2.31	2.98	0.03	0.29	0.71
SVN	26	0.50	1.60	3.64	5.80	8.58	11.64	0.00	0.44	1.07	0.02	5.65	11.33	1.58	2.07	2.60	0.69	1.22	1.92	1.60	2.15	2.98	0.08	0.60	1.37
SWE	151	0.14	0.45	2.14	8.37	12.81	17.45	0.42	0.92	1.41	4.34	6.99	11.02	1.59	2.33	3.44	0.57	0.95	1.50	1.35	2.04	3.40	0.00	0.08	0.41
TUR	61	0.45	3.72	33.43	8.15	11.29	17.31	0.38	1.34	2.46	3.74	11.43	17.62	3.03	4.08	6.40	0.52	1.30	2.51	2.09	3.18	5.08	0.17	0.61	1.18
UKR	205	0.04	0.17	0.90	9.25	15.56	29.81	-0.55	0.40	1.70	-1.17	2.25	12.25	2.61	4.70	7.42	1.26	2.73	5.43	3.14	5.35	8.87	0.06	1.21	4.27
All countries	9542	0.14	0.57	3.13	4.83	8.25	13.70	0.12	0.35	0.95	1.74	4.97	9.92	1.38	2.30	3.38	0.49	0.87	2.06	1.43	2.29	3.85	0.00	0.21	0.65

1/ Billions of USD
2/ Percentage

Table A2: Summary Statistics of Q3 Balance Sheets' Key Indicators (Medians across banks)

Country	Num. unique entities	Total assets 1/	Equity to total asset 2/	ROA 2/	ROE 2/	Net interest income 2/	Noninterest income 2/	Noninterest expense 2/	Impairment cost 2/
ALB	9	1.29	10.60	1.09	12.16	2.19	1.48	1.75	0.09
BGR	3	4.34	9.10	0.97	8.76	1.73	0.75	1.27	0.05
BLR	4	0.12	18.57	2.33	11.21	2.43	6.96	3.95	1.13
CHE	1	40.05	6.90	0.27	3.97	0.87	0.26	0.65	0.04
CZE	6	4.36	9.77	1.06	10.84	1.13	0.37	0.72	-0.22
DEU	3	14.83	4.64	0.15	4.37	0.69	0.03	0.59	-0.36
DNK	12	4.46	12.35	1.30	10.59	2.29	1.41	1.78	0.05
ESP	86	1.59	8.40	0.51	5.56	1.74	0.19	0.90	0.15
FIN	3	80.56	5.83	0.27	4.54	0.64	0.08	0.30	0.01
FRA	1	7.64	1.20	0.14	11.53	0.11	1.79	1.71	0.00
HRV	6	0.75	10.51	1.07	7.21	2.13	0.47	1.22	0.07
HUN	1	48.75	11.59	2.53	21.82	1.76	3.17	2.22	-0.07
ITA	2	21.74	8.26	1.00	11.72	1.69	0.51	1.61	0.07
LTU	6	8.13	9.15	1.44	12.94	2.47	0.99	1.92	0.07
LUX	1	4.10	9.18	1.92	20.94	7.27	0.92	2.82	3.05
LVA	9	0.83	11.21	1.50	16.54	2.44	0.90	1.41	0.06
MDA	11	0.29	19.24	1.92	11.25	3.71	1.29	2.57	0.07
MKD	5	1.90	14.38	1.92	10.00	2.62	0.95	1.56	0.34
MLT	1	3.70	7.80	0.44	5.65	1.58	0.21	1.10	0.01
MNE	11	0.46	9.07	1.23	11.87	2.19	0.93	1.54	0.04
NOR	125	0.75	12.51	0.88	6.75	1.79	0.33	0.93	0.04
POL	11	50.53	9.62	1.02	10.49	2.93	0.67	1.37	0.17
PRT	87	0.33	9.50	0.82	8.55	1.96	0.67	1.33	0.21
ROU	3	16.43	9.27	1.24	14.35	2.34	1.08	1.79	0.10
RUS	3	0.42	13.76	0.96	6.25	3.31	0.42	0.95	0.88
SRB	19	1.38	13.50	1.53	10.68	2.92	1.03	2.16	0.30
SVK	9	6.60	8.94	0.77	8.07	1.51	0.58	1.00	0.12
SVN	1	16.66	12.46	1.80	14.43	2.48	0.57	1.20	-0.04
SWE	19	4.49	8.48	1.00	7.74	1.72	0.46	0.82	0.03
TUR	44	2.38	10.39	2.55	20.81	2.43	3.01	1.91	0.21
UKR	56	0.14	13.35	1.62	12.87	5.10	1.84	4.34	0.35

1/ Billions of USD
2/ Percentage

Table A3: Regressed Profit and Components against Lagged Variables

Panel A: 1-year Lags

	ROA		Net interest income		Noninterest income		Impairment cost		Noninterest expense	
Log assets	0.0013**	0.0006*	-0.0041**	-0.0018**	0.0021**	0.0032***	-0.0004	0.0017***	-0.0023	-0.0007*
	(0.0006)	(0.0003)	(0.0017)	(0.0007)	(0.0011)	(0.0005)	(0.0012)	(0.0004)	(0.0014)	(0.0004)
Equity-to-assets	0.0140**	0.0082	-0.0119***	0.0028	0.0367	0.0455	0.0013	0.0170***	0.0113	0.0223**
	(0.0054)	(0.0084)	(0.0033)	(0.0085)	(0.0324)	(0.0288)	(0.0073)	(0.0048)	(0.0166)	(0.0091)
NPL ratio	-0.0310***	-0.0332***	-0.0098	-0.0052	0.0031	0.0035	0.0386***	0.0435***	-0.0047	-0.0027
	(0.0050)	(0.0050)	(0.0072)	(0.0049)	(0.0043)	(0.0031)	(0.0040)	(0.0043)	(0.0051)	(0.0038)
Cost-to-income	-0.0073***	-0.0080***	-0.0082***	-0.0061***	-0.0037	-0.0035	-0.0036***	-0.0021	0.0029***	0.0038***
	(0.0010)	(0.0014)	(0.0009)	(0.0016)	(0.0024)	(0.0027)	(0.0007)	(0.0017)	(0.0008)	(0.0014)
Loans-to-asset	-0.0058***	-0.0054**	0.0007	-0.0016	0.0055**	0.0026*	0.0091***	0.0068***	0.0025	-0.0002
	(0.0020)	(0.0021)	(0.0016)	(0.0025)	(0.0025)	(0.0016)	(0.0014)	(0.0012)	(0.0016)	(0.0016)
Deposit-to-assets	0.0063**	0.0045**	-0.0057*	0.0010	0.0046***	0.0083***	-0.0108***	-0.0053***	0.0027	0.0077***
	(0.0028)	(0.0021)	(0.0031)	(0.0016)	(0.0016)	(0.0013)	(0.0030)	(0.0020)	(0.0031)	(0.0014)
Interest income-to-revenue	0.0034	0.0047	0.0139***	0.0097***	-0.0148**	-0.0156**	-0.0026	-0.0060***	-0.0029	-0.0051**
	(0.0028)	(0.0042)	(0.0004)	(0.0022)	(0.0074)	(0.0071)	(0.0023)	(0.0008)	(0.0029)	(0.0024)
Number of branches to assets	-0.0840**	-0.0740*	0.0744***	0.0327	-0.1980	-0.2086*	0.0707***	0.0424	-0.0492	-0.0734
	(0.0369)	(0.0437)	(0.0242)	(0.0375)	(0.1245)	(0.1231)	(0.0115)	(0.0281)	(0.0578)	(0.0463)
Number of employee to assets	0.0243***	0.0255***	0.0059***	0.0028	0.0749***	0.0759***	-0.0055**	-0.0077**	0.0506***	0.0501***
	(0.0033)	(0.0031)	(0.0013)	(0.0034)	(0.0223)	(0.0224)	(0.0023)	(0.0030)	(0.0115)	(0.0101)
Concentration	-0.0433**	-0.0419***	-0.0216	-0.0245*	0.0432	0.0480*	0.0232	0.0220***	0.0443	0.0460***
	(0.0194)	(0.0092)	(0.0414)	(0.0147)	(0.0283)	(0.0267)	(0.0330)	(0.0057)	(0.0419)	(0.0123)
Real GDP growth		0.0002		0.0262***		-0.0235***		-0.0040		-0.0013
		(0.0080)		(0.0034)		(0.0030)		(0.0109)		(0.0017)
Sovereign yield 2y		-0.0480*		0.1551***		0.0670***		0.1334***		0.1038***
		(0.0258)		(0.0484)		(0.0240)		(0.0269)		(0.0214)
Sovereign spead 10-2y		0.0139		0.0612		0.0884		0.0179		0.0856***
		(0.0313)		(0.0490)		(0.0613)		(0.0265)		(0.0085)

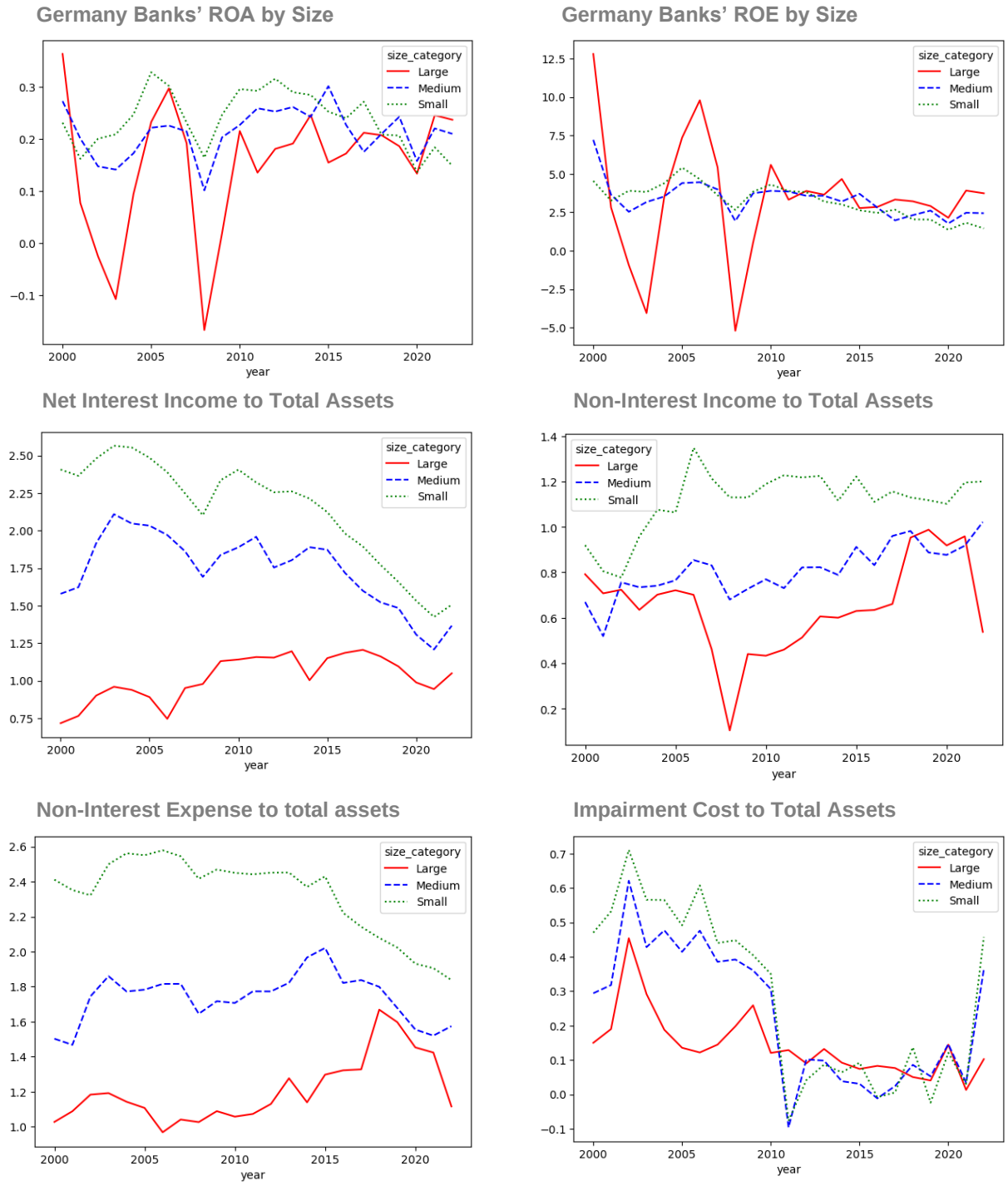
Notes: All independent variables are lagged by 1 year. With the exception of ROA, all dependend variables are divideded by total assets.

Panel B: 2-year Lags

	ROA		Net interest income		Noninterest income		Impairment cost		Noninterest expense	
Log assets	0.0013**	0.0006*	-0.0041**	-0.0018**	0.0021**	0.0032***	-0.0004	0.0017***	-0.0023	-0.0007*
	(0.0006)	(0.0003)	(0.0017)	(0.0007)	(0.0011)	(0.0005)	(0.0012)	(0.0004)	(0.0014)	(0.0004)
Equity-to-assets	0.0140**	0.0082	-0.0119***	0.0028	0.0367	0.0455	0.0013	0.0170***	0.0113	0.0223**
	(0.0054)	(0.0084)	(0.0033)	(0.0085)	(0.0324)	(0.0288)	(0.0073)	(0.0048)	(0.0166)	(0.0091)
NPL ratio	-0.0310***	-0.0332***	-0.0098	-0.0052	0.0031	0.0035	0.0386***	0.0435***	-0.0047	-0.0027
	(0.0050)	(0.0050)	(0.0072)	(0.0049)	(0.0043)	(0.0031)	(0.0040)	(0.0043)	(0.0051)	(0.0038)
Cost-to-income	-0.0073***	-0.0080***	-0.0082***	-0.0061***	-0.0037	-0.0035	-0.0036***	-0.0021	0.0029***	0.0038***
	(0.0010)	(0.0014)	(0.0009)	(0.0016)	(0.0024)	(0.0027)	(0.0007)	(0.0017)	(0.0008)	(0.0014)
Loans-to-assets	-0.0058***	-0.0054**	0.0007	-0.0016	0.0055**	0.0026*	0.0091***	0.0068***	0.0025	-0.0002
	(0.0020)	(0.0021)	(0.0016)	(0.0025)	(0.0025)	(0.0016)	(0.0014)	(0.0012)	(0.0016)	(0.0016)
Deposit-to-assets	0.0063**	0.0045**	-0.0057*	0.0010	0.0046***	0.0083***	-0.0108***	-0.0053***	0.0027	0.0077***
	(0.0028)	(0.0021)	(0.0031)	(0.0016)	(0.0016)	(0.0013)	(0.0030)	(0.0020)	(0.0031)	(0.0014)
Interest income-to-revenue	0.0034	0.0047	0.0139***	0.0097***	-0.0148**	-0.0156**	-0.0026	-0.0060***	-0.0029	-0.0051**
	(0.0028)	(0.0042)	(0.0004)	(0.0022)	(0.0074)	(0.0071)	(0.0023)	(0.0008)	(0.0029)	(0.0024)
Number of branches to assets	-0.0840**	-0.0740*	0.0744***	0.0327	-0.1980	-0.2086*	0.0707***	0.0424	-0.0492	-0.0734
	(0.0369)	(0.0437)	(0.0242)	(0.0375)	(0.1245)	(0.1231)	(0.0115)	(0.0281)	(0.0578)	(0.0463)
Number of employee to assets	0.0243***	0.0255***	0.0059***	0.0028	0.0749***	0.0759***	-0.0055**	-0.0077**	0.0506***	0.0501***
	(0.0033)	(0.0031)	(0.0013)	(0.0034)	(0.0223)	(0.0224)	(0.0023)	(0.0030)	(0.0115)	(0.0101)
Concentration	-0.0433**	-0.0419***	-0.0216	-0.0245*	0.0432	0.0480*	0.0232	0.0220***	0.0443	0.0460***
	(0.0194)	(0.0092)	(0.0414)	(0.0147)	(0.0283)	(0.0267)	(0.0330)	(0.0057)	(0.0419)	(0.0123)
Real GDP growth		0.0002		0.0262***		-0.0235***		-0.0040		-0.0013
		(0.0080)		(0.0034)		(0.0030)		(0.0109)		(0.0017)
Sovereign yield 2y		-0.0480*		0.1551***		0.0670***		0.1334***		0.1038***
		(0.0258)		(0.0484)		(0.0240)		(0.0269)		(0.0214)
Sovereign spread 10-2y		0.0139		0.0612		0.0884		0.0179		0.0856***
		(0.0313)		(0.0490)		(0.0613)		(0.0265)		(0.0085)

Notes: All independent variables are lagged by 2 years. With the exception of ROA, all dependend variables are divideded by total assets.

Figure A1. DEU: Financial Ratios



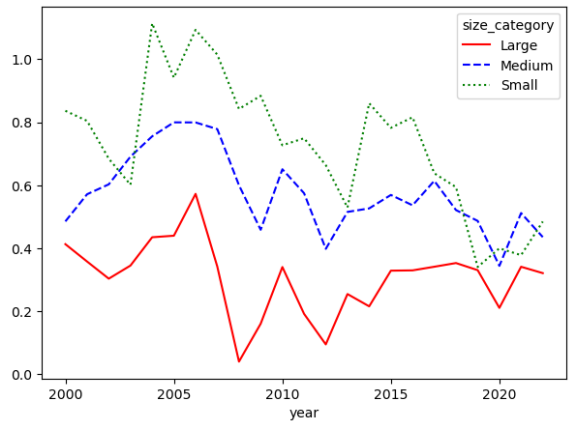
Sources: Fitch connect and IMF staff calculations.

Figure A2. ESP: Financial Ratios

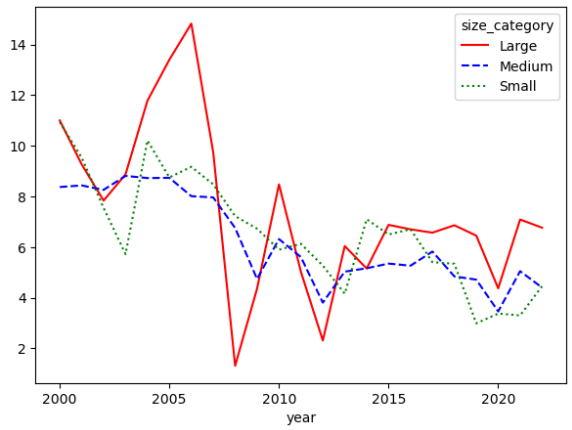
Sources: Fitch connect and IMF staff calculations.

Figure A3. FRA: Financial Ratios

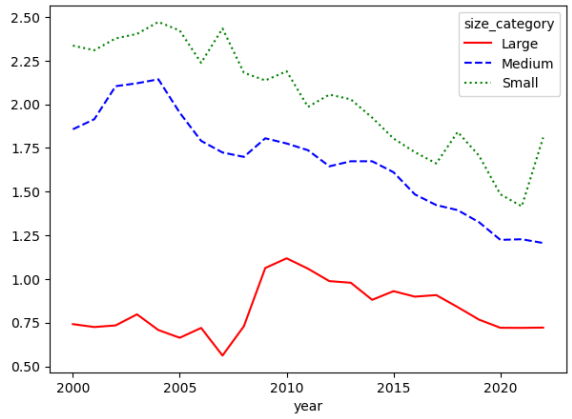
French Banks' ROA by Size



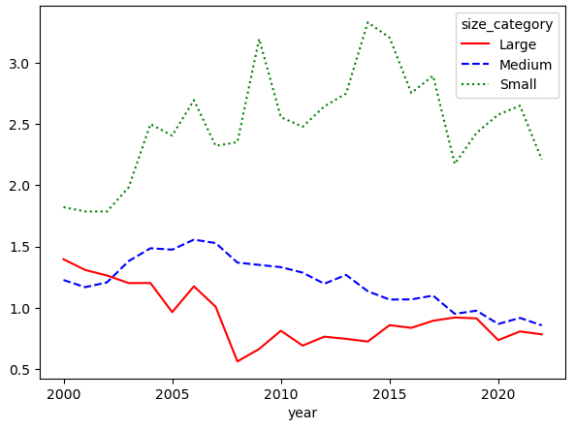
French Banks' ROE by Size



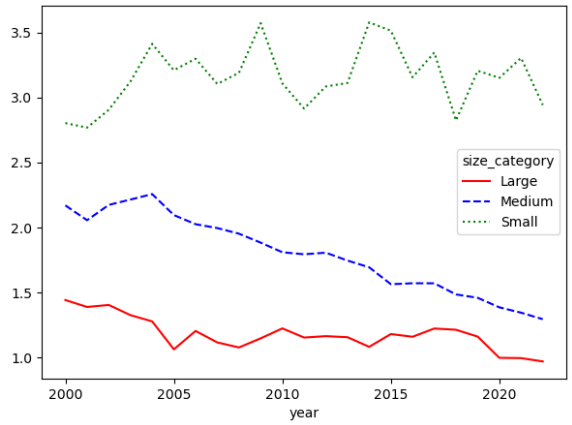
Net Interest Income to Total Assets



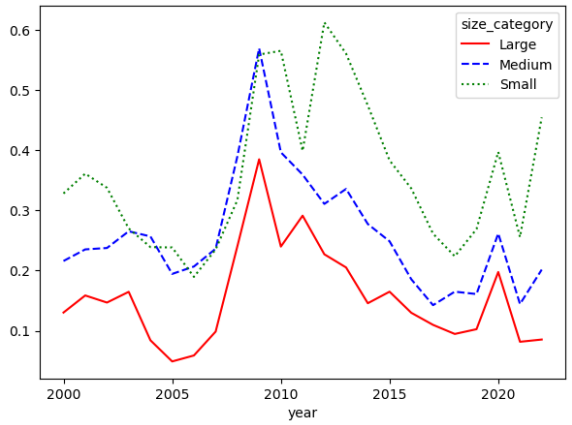
Non-Interest Income to Total Assets



Non-Interest Expense to total assets

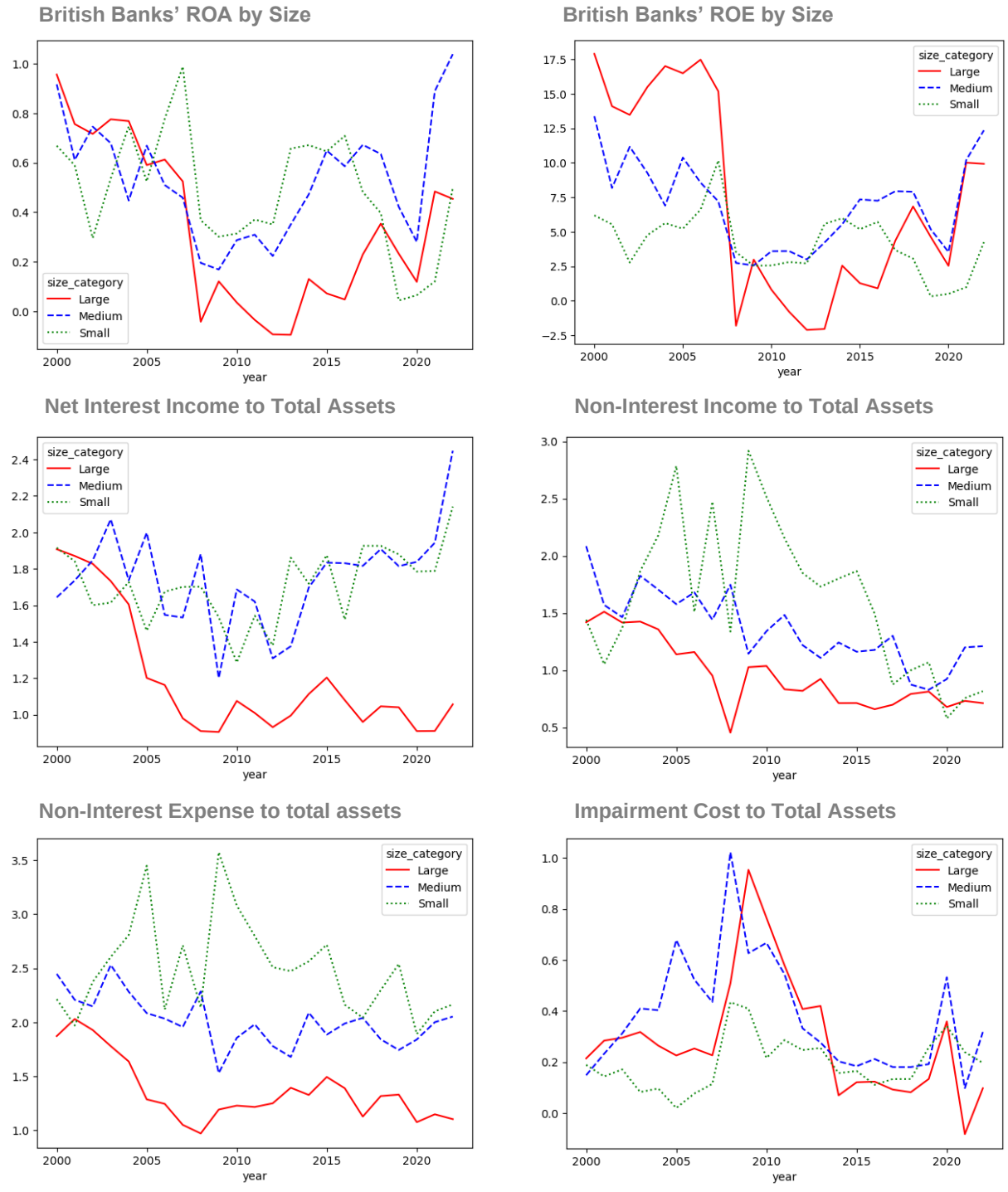


Impairment Cost to Total Assets



Sources: Fitch connect and IMF staff calculations.

Figure A4. GBR: Financial Ratios



Sources: Fitch connect and IMF staff calculations.

Figure A5. GRC: Financial Ratios

Sources: Fitch connect and IMF staff calculations.

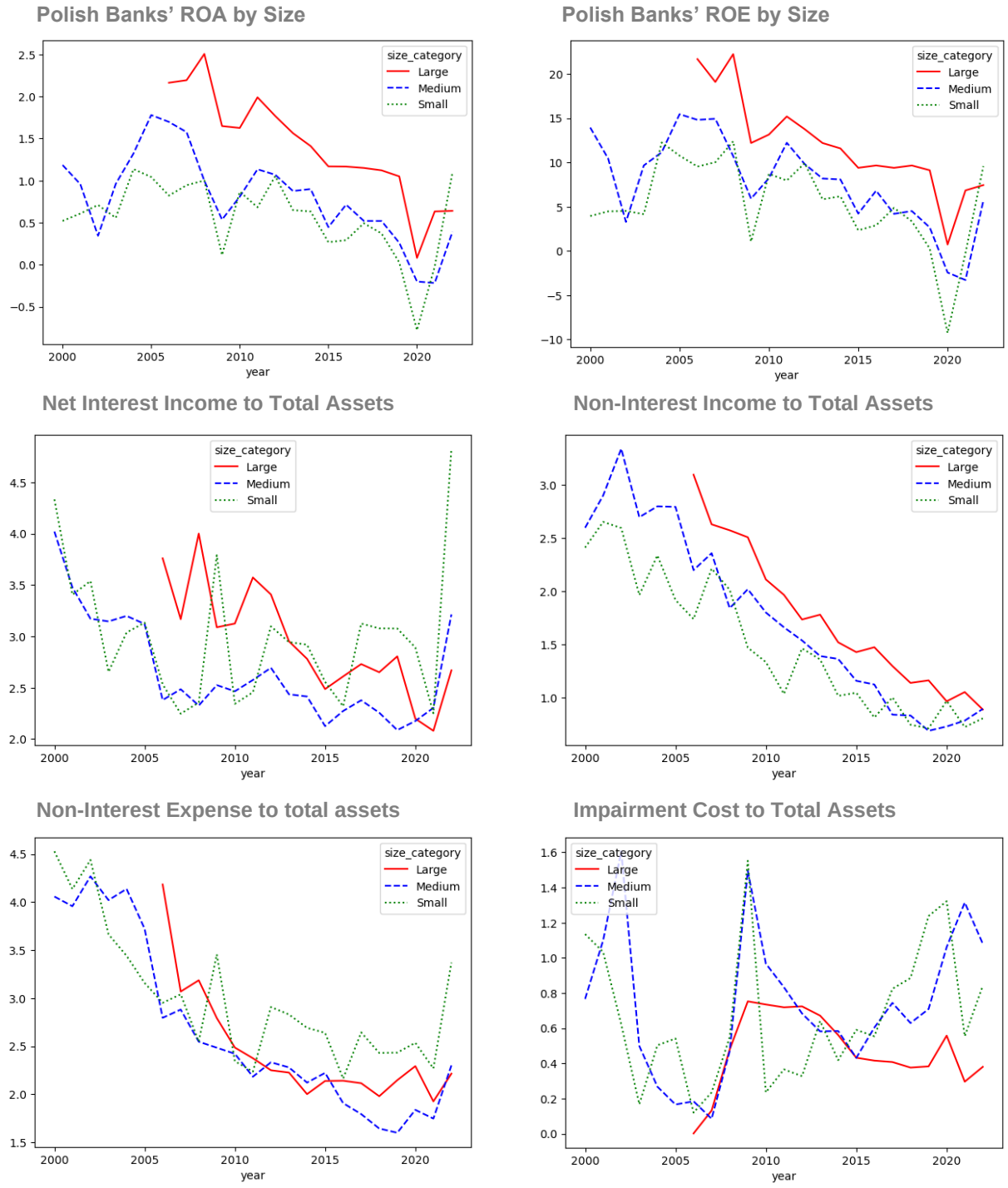
Figure A6. ITA: Financial Ratios

Sources: Fitch connect and IMF staff calculations.

Figure A7. NLD: Financial Ratios

Sources: Fitch connect and IMF staff calculations.

Figure A8. POL: Financial Ratios



Sources: Fitch connect and IMF staff calculations.

Figure A9. PRT: Financial Ratios

Sources: Fitch connect and IMF staff calculations.

Figure A10. RUS: Financial Ratios[1]

Sources: Fitch connect and IMF staff calculations.

[1] The coverage of Russian banks deteriorated significantly in 2021 balance sheets

Figure A11. TUR: Financial Ratios

Sources: Fitch connect and IMF staff calculations.

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