Bank profitability in the euro area in times of high inflation

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Abstract

Following the shift in the European Central Bank's (ECB) monetary policy in mid-2022, the interest income of euro area banks rose markedly, boosting their overall profitability. This paper shows that the positive impact of higher interest rates on bank profitability was amplified by the existence of abundant excess liquidity. In particular, since euro area banks held large stocks of excess liquidity, they were able to earn substantial risk-free interest income by simply putting their liquidity into the ECB's deposit facility. In addition, due to the prolonged period of monetary expansion and zero interest rates on time deposits, the share of overnight deposits in total bank liabilities had increased significantly by the time the ECB tightened its policy. Since overnight deposits typically respond slowly to policy rate changes, such a structure of funding enabled euro area banks to enjoy comfortable net interest margins for some time.

Keywords: inflation, monetary policy, fiscal policy, bank profitability

1 INTRODUCTION

The sudden rise in inflation in the period 2021-22 created many losers and some winners. The obvious losers were lower-income households, who typically spend a significant part of their income on basic necessities, such as food and energy, the prices of which rose the most in the post-pandemic period. For this reason, many of the support measures adopted by national governments were aimed specifically at mitigating the impact of inflation on this part of the population. Banks, on the other hand, were among the winners. The steep rise in the ECB's key interest rates was reflected very quickly in banks' interest income, while the rise in interest expenses was much slower. As a result, the net interest income and reported profitability of banks improved markedly. Announcements of record bank profits were not well received by the public, given rising living costs and the increasingly tight financing conditions that were felt by most households. In principle, a rise in interest rates can also affect banks in a negative way, such as through a reduction in the economic value of banks due to mark-to-market losses on fixed income assets or through a more fragile liquidity position as the situation in funding markets worsens. Furthermore, when interest rates go up, the solvency of borrowers can be undermined, exposing banks to higher provisioning costs. However, these negative effects were in this period quite small compared to the positive impact of higher interest rates on bank earnings (ECB, 2023).

The objective of this paper is to determine why the impact of monetary policy tightening on bank profitability was so strong in this particular episode. The euro area had experienced a monetary policy tightening cycle in the past, but the impact on bank profits was not even remotely as strong as it was this time. What makes the recent policy tightening cycle so special is the fact that it began right after the end of a long period of unprecedented monetary easing; the ECB had been pursuing a highly accommodative monetary policy for more than six years when inflationary pressures emerged in 2021. During this period, the ECB carried out two

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rounds of quantitative easing, the first of which was launched in 2015 to tackle deflationary pressures, and the second in 2020 to contain the economic fallout from the COVID-19 pandemic. Meanwhile, the ECB supplied banks with liquidity also directly by conducting targeted long-term refinancing operations, with the aim of encouraging banks to step up lending to the private sector.

An important effect of these large-scale monetary operations was a significant injection of liquidity into the banking system. In particular, the excess liquidity of euro area banks increased from 120 billion euro in December 2014 to more than 4.5 trillion euro in March 2022, when the second round of quantitative easing finally ended. Prior to the change in monetary policy, this large excess liquidity was actually costly for banks, given that the ECB had applied a negative interest rate to banks' deposits with the Eurosystem central banks since 2014. However, as soon as the ECB began raising its key interest rates in the summer of 2022 to tackle high inflation, trillions of euros of excess liquidity became a major source of interest income for euro area banks. The interest rate that banks could earn by placing their excess liquidity into the ECB's deposit facility rose by a cumulative 4.5 percentage points from June 2022 to September 2023. Bank lending rates rose quickly as well, particularly interest rates on loans to non-financial corporations. In contrast, interest rates on customer deposits responded more gradually, with the pass-through to retail overnight deposits – whose importance as a source of funding for banks had increased considerably during the years of quantitative easing – being particularly weak. Since interest income grew much faster than interest expenses, banks' net interest income soared.

The paper is structured as follows. Section 2 provides a brief background, documenting how euro area banks performed in the period before inflation started to rise. In particular, it shows how the extremely accommodative monetary policy of the ECB led to a rapid build-up of excess liquidity in the banking system and how banks adapted to such an environment in order to maintain their profitability. Section 3 is the central part of the paper which looks at the different channels through which the ECB's policy rate hikes boosted bank profitability. In that regard, special attention is paid to the role of substantial interest income that banks earned by simply depositing their excess liquidity with the Eurosystem. Section 4 draws some policy lessons from the post-pandemic period, and section 5 concludes the paper.

2 MONETARY POLICY OF THE EUROPEAN CENTRAL BANK AND THE BUILD-UP OF EXCESS LIQUIDITY

2.1 MONETARY POLICY OF THE EUROPEAN CENTRAL BANK FOLLOWING THE EURO AREA SOVEREIGN DEBT CRISIS

To understand the link between inflation and bank profitability in the recent period better, it is important to consider the environment in which euro area banks had operated before inflation started to rise. The global surge in inflation in 2021-22 was preceded by a prolonged period of subdued price pressures. In the aftermath of the global financial crisis of 2008-09, the euro area economy experienced

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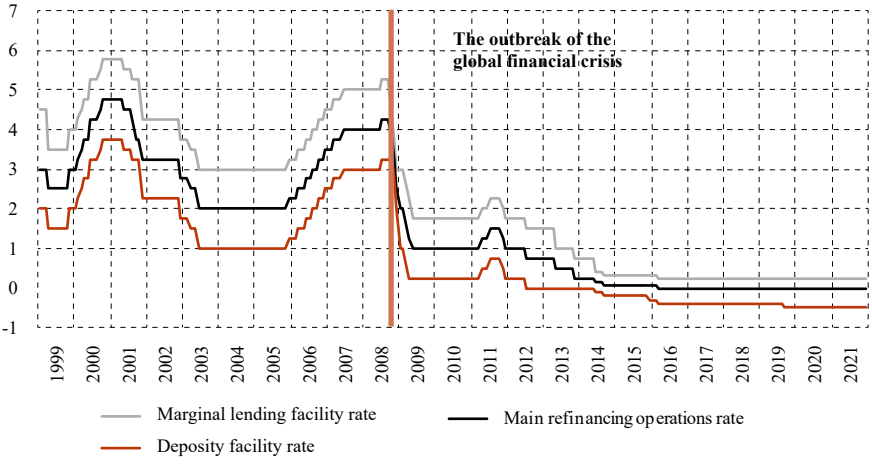
several years of disappointing performance, with weak growth and an inflation rate consistently below the ECB's target of close to 2 percent. This was partly a result of high uncertainty and financial market instability caused by debt refinancing problems that some member states experienced following the global financial crisis. The debt crisis, which peaked between 2010 and 2012, was so severe that it almost led to the collapse of the monetary union. Financial stability was eventually restored, but only after a series of major institutional reforms had been implemented, and after the ECB had taken decisive steps to reassure investors that the single currency would not collapse.

FIGURE 1

ECB's key policy rates (in percent)



Source: ECB.

Although the sovereign debt crisis had subsided by 2013, economic growth remained modest and inflation continued to edge down. In order to facilitate the recovery and bring the inflation rate closer to its target, the ECB pursued a highly expansionary monetary policy, which continued until the end of the decade, and beyond (figure 1). The key policy rates were brought to below zero, banks were supplied with ample, low-cost funding through the longer-term refinancing operations, and a large-scale asset purchase program was introduced in early 2015 in an attempt to reduce borrowing costs more directly.[1]

The pass-through of the ECB's policy measures to financial markets was smooth and strong. For example, as shown in figure 2, euro area governments saw a substantial reduction in borrowing costs when the debt crisis had ended, and particularly after the ECB's decision in March 2015 to launch a major bond buying scheme – the Asset Purchase Programme (APP). By purchasing long-term government

[1] While changes in key policy rates affect the borrowing costs of the non-financial sector indirectly – by altering the conditions under which banks can borrow from the central bank or deposit excess liquidity with the central bank – asset purchase programs directly reduce interest rates on the bonds that are purchased under the program.

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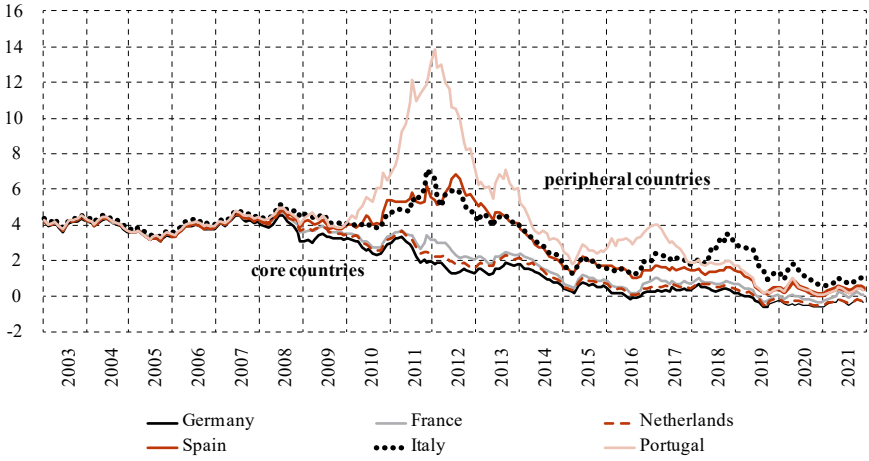
bonds in large quantities, the Eurosystem central banks caused the term premium on these bonds to narrow, resulting in a sharp drop in bond yields (Eser et al., 2019). In such an environment, Germany, France and several other advanced euro area member states saw their 10-year government bond yields fall below zero for the first time in history. In order to secure long-term gains from such favourable financing conditions, member states' governments took measures to extend the average maturity of their debts, so that the benefits of exceptionally low interest rates would be felt also in the future (Plessen-Mátyás, Kaufmann and Landesberger, 2021).

Figure 2

Yields on 10y government bonds of selected euro area member states (in %)

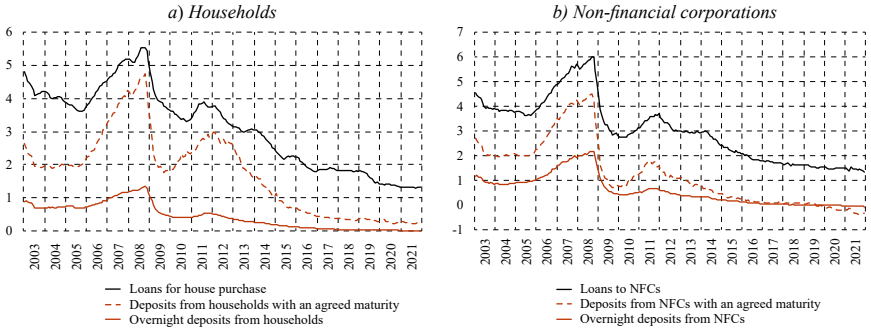


Source: Eurostat.

The transmission of the accommodative monetary policy to bank interest rates was equally smooth, as shown in figure 3. In particular, low central bank policy rates and the abundant excess liquidity created by the ECB through its unconventional policy measures exerted a strong downward pressure on bank lending rates. For example, the average interest rate on new housing loans in the euro area, which stood at 3% in 2013, declined steadily thereafter, getting as low as 1.3% by 2021. Interest rates on corporate loans decreased considerably too. The sharp drop in interest rates was not particularly good news for banks. Given that interest income is usually the main source of income for banks, lower lending rates implied a deterioration in their margin and revenue outlook. In particular, it was believed that banks, unable to impose negative deposit rates on their clients, would not be able to cut costs sufficiently to compensate for the loss of interest income. Accordingly, the environment of exceptionally loose monetary policy was challenging for banks as they had to find ways to sustain their profitability while the main source of income was drying up.

FIGURE 3

Bank lending and deposit rates in the euro area, new business (in %)



Source: ECB.

2.2 BANK PROFITABILITY DURING THE PERIOD OF EXPANSIONARY MONETARY POLICY

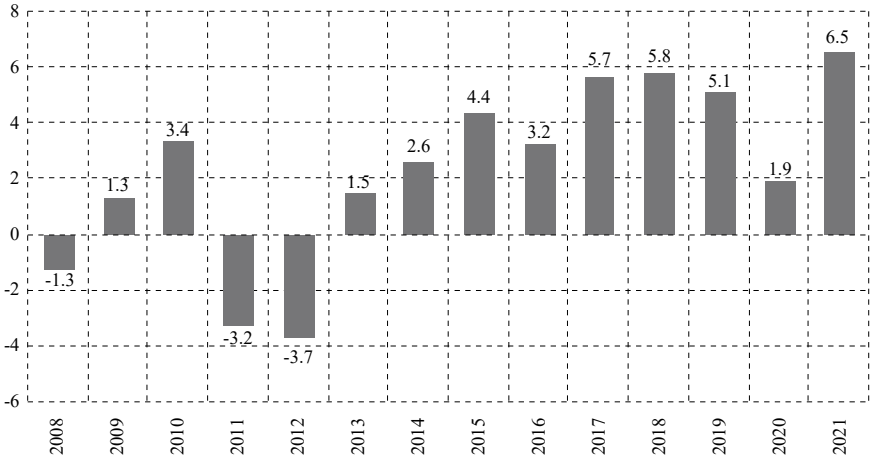
It turned out that banks did manage to adapt to the low interest rate environment. They even gradually improved their profitability, after the negative effects of the sovereign debt crisis of 2010-12 had faded away (figure 4).[2] Banks took actions on several fronts to support their overall income and reduce costs. First, to mitigate the fall in interest income at a time when lending rates were going down, banks increased their lending volumes, which was facilitated by strong demand for loans and a continued easing of banks' credit standards in a favourable macroeconomic environment (ECB, 2018b). Incentives for banks to step-up lending were particularly strong from mid-2014 when the ECB brought the deposit facility rate into negative territory for the first time (Boucinha and Burlon, 2020; ECB, 2018b). From that point on, excess liquidity held in their accounts with the Eurosystem was getting increasingly costly for banks, encouraging them to boost their lending.[3] This is exactly what the ECB wanted to achieve with its negative interest rate policy (Schnabel, 2020).

[2] At the height of the 2010-12 sovereign debt crisis, banks from the most affected euro area countries had to deal with several challenges which weighed on their profitability, including a weak economy and the resulting subdued demand for loans, large stocks of non-performing loans, high provisioning costs, and impaired access to market financing, as money market investors were reluctant to lend to banks headquartered in fiscally vulnerable member states (Paries, Jacquinot and Papadopoulou, 2016; ECB, 2018a). Moreover, as they had to meet more stringent capital and liquidity requirements introduced after the global financial crisis, banks' lending capacity was constrained, limiting further their ability to generate income.

[3] It is important to note that excess liquidity at the system level does not decrease when banks increase their lending activity. When a bank grants a loan to its client and the client uses the money to spend or invest, the money circulates within the banking system, from their bank's account with the Eurosystem to other banks' accounts with the Eurosystem, but liquidity at the system level remains unchanged. The overall level of liquidity changes almost exclusively as a result of central bank monetary policy operations.

FIGURE 4

Euro area banks' return on equity (in %)



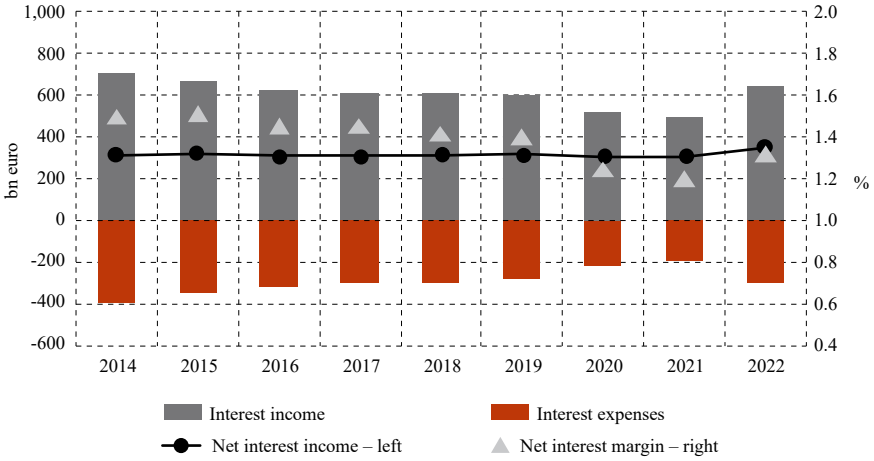
Source: ECB.

Second, banks made sure that their funding costs were reduced as much as possible. These efforts paid off, as shown in figure 5. By lowering their interest expenses, euro area banks managed to fully compensate for the sharp fall in interest income, leaving their net interest income almost unchanged in absolute terms throughout the period of exceptionally low policy rates. This was done at the expense of their depositors, as the bulk of the overall cost reduction was achieved through the reduction of interest rates on deposits.[4] Banks were able to do so without worrying about possible deposit outflows because the banking system was flooded with excess liquidity due to the ECB's quantitative easing. Since yields on safe assets were generally compressed at that time, depositors looking for safe investments had few alternatives, so they kept their money in their bank accounts despite the significant fall in deposit rates. The only noticeable change triggered by the reduction in interest rates on deposits was the migration of funds previously held in time deposits to overnight deposits. Since banks offered the same rate – zero – on time deposits as on overnight deposits, most of their customers preferred to keep their money in overnight deposits, which are more convenient. Moreover, banks took advantage of the low-cost funding provided by the ECB through its targeted longer-term refinancing operations, which further reduced their funding costs. While net interest income remained almost unchanged in absolute terms, it decreased significantly in relative terms in 2020 and 2021 as a result of the rapid expansion of banking system assets driven by the ECB's quantitative easing program (figure 5).

[4] While interest rates on household deposits never fell below zero, interest rates on corporate deposits were actually negative from late 2019 to mid-2022. This could be attributed to banks taking advantage of the fact that some corporations keep large amounts of liquidity in their bank accounts for payment purposes, making it inconvenient for them to switch entirely to cash when deposit rates turn negative. Households, on the other hand, can more easily switch to holding cash, which limits the banks' ability to impose negative rates on them.

FIGURE 5

Euro area banks' net interest income and margin



Source: ECB.

Third, to support their profits at a time when interest income was subdued, banks took measures to boost their income from other sources, including by increasing their net fee and commission income (Altavilla et al., 2019). The size of fee and commission income expressed as a percentage of total assets rose accordingly, as did the relative size of capital gains on financial instruments, driven by the positive impact of the ECB's highly accommodative monetary policy on asset valuations.

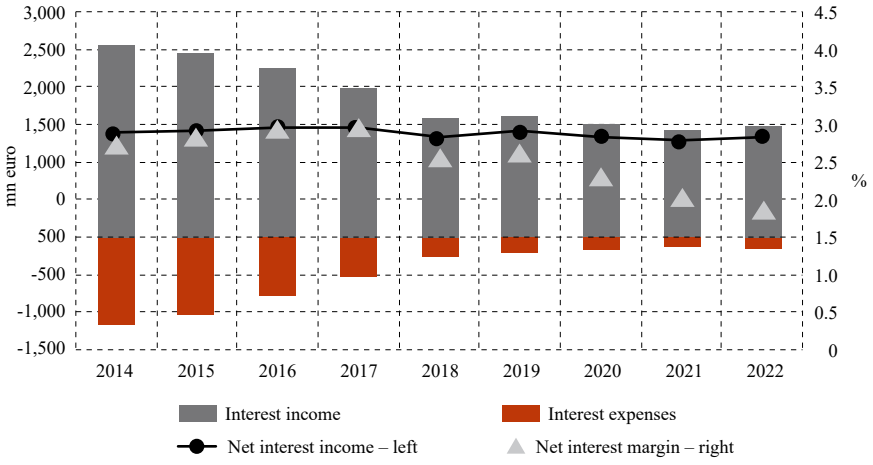
Finally, euro area banks felt, in an indirect manner, the positive effects of the expansionary monetary policy on economic activity. As the ECB's unconventional policy measures provided an impetus to growth and employment, the creditworthiness of borrowers improved as a result, and the demand for loans was strong. This not only allowed banks to achieve their desired targets for loan growth, but they also saw a steady reduction in provisioning costs. All these factors helped offset the negative impact of compressed net interest margins on bank profitability (ECB, 2016; Altavilla, 2019; Boucinha and Burlon, 2020).

The aggregate performance of Croatian banks in this period was in line with the performance of their euro area peers. Despite the steady decline in lending rates, net interest income remained largely unaffected in absolute terms because the decline in interest income was offset by an equally strong reduction in interest expenses (figure 6). In other words, banks lowered the interest rates on customer deposits to zero in an attempt to compensate for the lower interest income they were earning on their loan portfolios. The abundant and rapidly growing excess liquidity in the banking system – which reflected Croatia's strong balance of

payments position[5] – made it easier for banks to carry out these adjustments because they did not have to worry about a possible outflow of deposits. At the same time, many banks increased the fees they charge their customers in order to boost non-interest income. Moreover, the favourable macroeconomic environment supported an improvement in the quality of banks' assets, with provisions for loan losses decreasing steadily. Nevertheless, as was the case in the euro area, the net interest income of Croatian banks decreased sharply in relative terms starting from 2020 due to the pandemic-related monetary expansion and the associated significant increase in banking system assets (figure 6).

FIGURE 6

Croatian banks' net interest income and margin



Source: Croatian National Bank.

To summarize, the environment of very low interest rates was challenging for euro area banks, as it weighed on net interest margins, their main source of profits. As shown in the next section, bank profitability indicators improved substantially following the sudden rise in inflation in the second half of 2021. In particular, given that persistently high inflation prompted the ECB to shift from a highly expansionary to an increasingly tight monetary policy, banks began to see a sharp increase in their interest income, which enabled them to enjoy record-high, if temporary, returns on equity.

[5] In the period from 2014 to 2021, Croatia recorded steady current and capital account surpluses driven by sizeable inflows from EU funds. As these inflows exerted strong appreciation pressures on the kuna exchange rate, the Croatian National Bank frequently intervened by purchasing foreign currency from commercial banks and the government. Given that the central bank maintained an accommodative policy stance at the time, no measures were taken to sterilize the domestic currency liquidity created through these interventions, with the result being a persistent rise in excess liquidity in the banking system.

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3 THE ABRUPT RISE IN INFLATION AND THE IMPACT ON BANK PROFITABILITY

3.1 THE IMPACT OF HIGHER INTEREST RATES ON BANK PROFITABILITY

The abrupt rise in inflation in the second half of 2021 and the associated deterioration in the medium-term inflation outlook had a profound impact on the profitability of euro area banks. Changes in inflation affect bank profitability indirectly, through the related changes in the level of interest rates, for as inflation picks up, interest rates typically rise in response, which increases – although to different degrees – both the interest income and the interest expenses of banks. Interest rates tend to rise in response to higher inflation due to two main factors: an increase in central bank policy rates and an increase in the inflation risk premium. Central banks raise their policy rates in response to unacceptably high inflation so as to tame aggregate demand and reduce pressure on consumer prices. This is exactly what the ECB, the Fed and most other central banks did once they had realized that the increase in inflation was not a transitory phenomenon. If investors expect the central bank policy rates to stay higher in the future as well, interest rates on longer-term assets will increase in line with short-term rates. The inflation risk premium may cause long-term interest rates to rise beyond the increase in the expected future policy rates. In particular, if a higher current inflation rate leads to greater uncertainty about future inflation, investors in long-term assets will demand a higher compensation for this uncertainty, which will put additional upward pressure on long-term interest rates. As noted by Camba-Mendez and Werner (2017), the inflation risk premium was actually negative in the euro area for several years after the global financial crisis due to persistent deflationary pressures. However, following the recent surge in inflation, the inflation risk premium turned positive again (Lane, 2022).

Bank profitability normally improves when interest rates rise. While their interest expenses also grow when financial conditions tighten, the response of banks' interest income is usually stronger. This seems counterintuitive at first, given the positive contractual maturity gap that most banks have, in the sense that the weighted average maturity of their interest-earning assets is much longer than the maturity of their interest-bearing liabilities. However, as noted by Borio, Gambacorta and Hofmann (2017) and Drechsler, Savov and Schnabl (2021), banks' positive maturity gap is very small in practice because the behavioural duration of deposits is much longer than their contractual duration. Specifically, an important source of funding for banks is low-cost retail overnight deposits, which respond very slowly to changes in central bank policy rates. A large base of retail overnight deposits can mitigate the impact of policy rate hikes on banks' interest expenses and thus create room for an increase in net interest income. Banks also actively hedge their exposure to interest rate risk, for instance by granting variable-rate loans and – in the case of large, sophisticated banks – using interest rate derivatives, in order to amortize the possible negative impact of changes in the level of interest rates (Coulier et al., 2023). Another factor supporting bank profits is a steepening of the yield curve, which often occurs when interest rates are rising.

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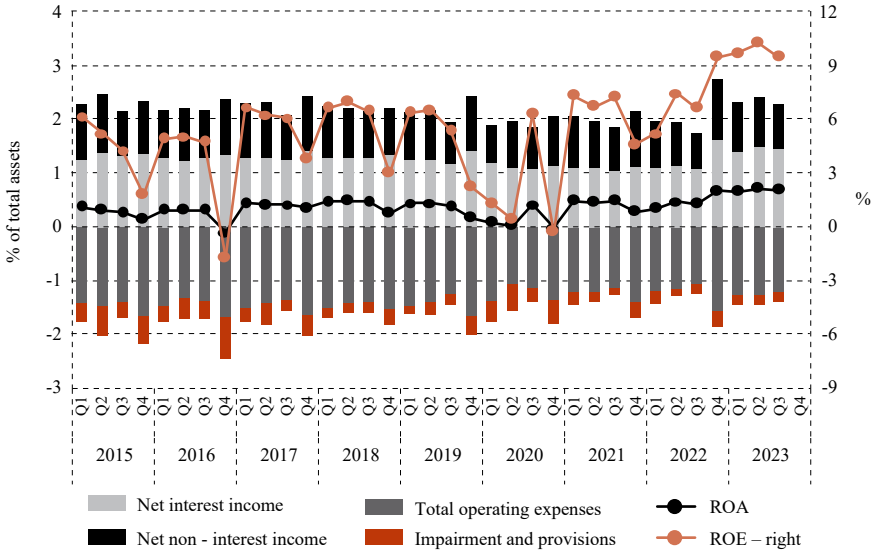
Given the long average maturity of banks' assets compared to liabilities, when the yield curve becomes steeper, interest rates on their assets rise more than interest rates on their liabilities, boosting their profits (Borio, Gambacorta and Hofmann, 2017).

FIGURE 7

Euro area banks' ROA and ROE, annualized quarterly data

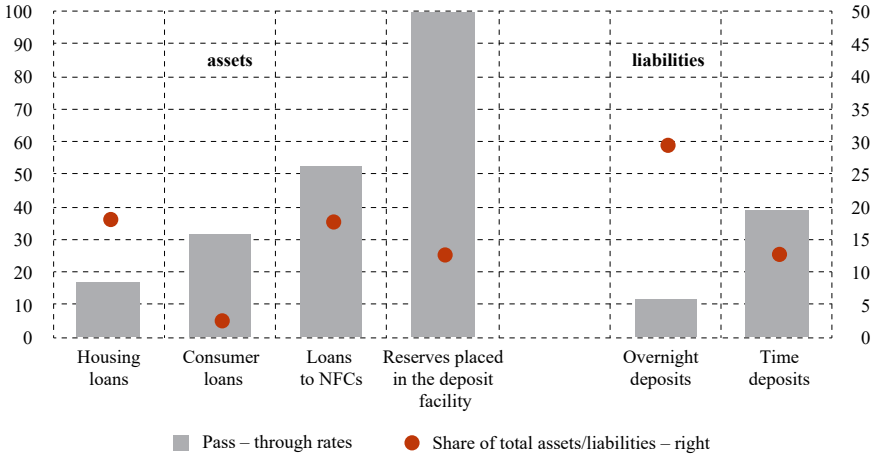


Source: ECB.

Banks in the euro area were on aggregate well positioned to take advantage of rising interest rates. Following the shift in the ECB's monetary policy, net interest income of banks rose considerably, which boosted their overall profitability (figure 7). There were three main factors supporting euro area banks' net interest income after mid-2022. First, as the euro area banking system was flooded with liquidity as a result of the prolonged period of quantitative easing, banks were able to earn substantial interest income by simply keeping their abundant excess reserves in the ECB's deposit facility, which offered an interest rate of up to 4%. Second, interest rates on bank loans – both on new loans and outstanding variable-rate loans – rose sharply in line with the ECB's policy rates, thus boosting banks' interest income. Third, given that overnight deposits constituted a significant portion of the total liabilities of euro area banks, the interest expenses of banks rose more gradually than their interest income, allowing them to enjoy comfortable net interest margins for some time.

FIGURE 8

Pass-through of ECB policy rate hikes to selected items of assets and liabilities of euro area banks, outstanding amounts (in %)*



** Refers to the cumulative pass-through from July 2022 to December 2023.*

Sources: ECB, author's calculations.

The relevance of these factors in driving banks' net interest margins from mid-2022 is illustrated in figure 8. It shows the extent to which the 450 basis point increase in the ECB's key policy rates had affected the interest rates on outstanding bank assets and liabilities by the end of 2023. On the asset side, the transmission was particularly strong in the case of central bank reserves and corporate loans. As a zero-duration asset, central bank reserves held in the ECB's deposit facility were directly and fully affected by policy rate increases, which considering the large size of excess reserves – they accounted for 13% of total bank assets – contributed significantly to the overall increase in banks' interest income. Interest rates on outstanding corporate loans grew more rapidly than those on outstanding housing loans, given their shorter average maturity and less frequent use of fixed-rate contracts. On the liability side, the transmission of the ECB's policy rate increases was – in line with the findings of the above-mentioned literature – much weaker in the case of overnight deposits than in the case of time deposits (figure 8). Since overnight deposits made up almost two thirds of total deposits, such weak transmission ensured that banks' interest expenses grew more gradually than their interest income. The factors driving the widening of banks' net interest margins are explored in more detail in the remainder of this section.

3.1.1 Interest income earned on excess reserves placed in the deposit facility

As noted above, following the sovereign debt crisis, the ECB maintained a highly accommodative monetary policy in order to counter deflationary pressures and support economic recovery (figure 9). The most noticeable effect of this policy was the injection of a considerable amount of central bank reserves into the banking system, due to which deposits of euro area banks with the Eurosystem increased

from under 200 billion euro at the end of 2014 to more than 4.5 trillion euro in early 2022 (figure 10).

FIGURE 9

Composition of the Eurosystem's total consolidated assets (bn euro)

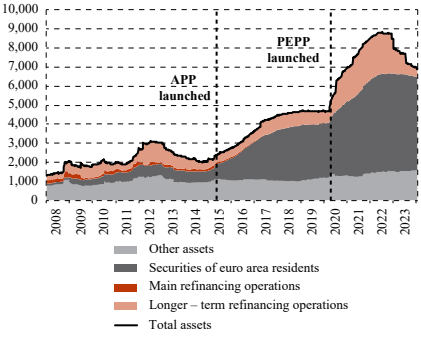
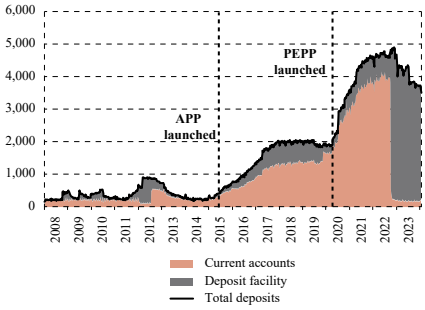


FIGURE 10

Size and composition of banks' deposits with the Eurosystem (bn euro)



Source: ECB.

These large holdings of reserves enabled banks to start earning substantial risk-free interest income immediately after the ECB brought its key policy rate into positive territory in response to high inflation. As shown in figure 10, before the ECB embarked on its tightening cycle in the summer of 2022, banks kept most of excess reserves in their current accounts. There was no incentive for banks to put their money in the deposit facility because the same negative rate was applied to the deposit facility and current accounts. However, in July 2022, the ECB raised the deposit facility rate from -0.5% to 0%, and further to 0.75% in September of that year. In order to take advantage of the positive interest rate, within only a few days in mid-September euro area banks reallocated trillions of euros from their current accounts to the deposit facility (figure 10). At that point, the large excess reserves became a major source of interest income for banks. The ECB kept increasing the interest rate on the deposit facility until it reached 4% in September 2023.

The amount of interest paid by the Eurosystem to commercial banks after the start of monetary policy tightening was substantial. After the deposit facility rate was raised from zero to 0.75%, banks earned approximately 90 million euro per day from interest on their excess reserves. As the key policy rate was increased further substantially, banks' interest income on this basis grew steeply and in the second half of 2023 reached nearly 400 million euro per day (figure 11). Cumulatively, the Eurosystem distributed a total of 141 billion euro in interest to banks from September 2022 to December 2023, which accounted for approximately 20% of the total increase in euro area banks' gross interest income in that period (figure 12). However, it is important to note that, in net terms, the interest income earned by banks on excess liquidity was less than 400 million euro per day because interest expenses – the cost of financing bank assets, including excess reserves – grew as well in the context of tighter monetary policy, as shown in figure 12.

FIGURE 11

Daily interest income based on liquidity placed in the deposit facility

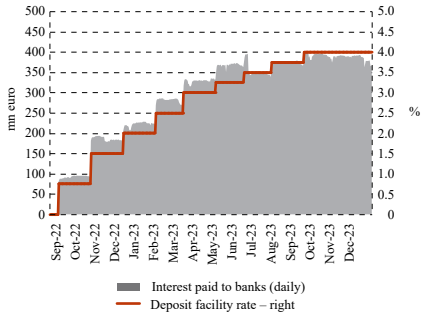
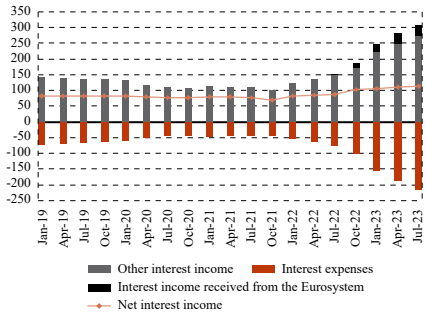


FIGURE 12

Net interest income of euro area banks, quarterly data (bn euro)



Sources: ECB, author's calculations.

The fact that banks enjoyed a sizeable risk-free income by merely keeping their excess reserves with the Eurosystem was seen as unfair, particularly because it was happening at a time when the rest of the economy was facing rising costs and falling disposable incomes. For that reason, some authors suggested that the ECB reduce the size of excess reserves by increasing the rate of non-remunerated minimum reserves (De Grauwe and Ji, 2023). By sterilizing excess reserves, the ECB would at least partly deprive the banks of the possibility of earning a substantial risk-free interest income. However, the ECB did not decide to go in that direction. If the ECB maintains this stance, which is a very likely scenario, excess reserves will fall only gradually over time, as banks repay their TLTRO loans and as bonds acquired under the two large asset purchase programs mature. Interest paid to commercial banks will fall over time also because the deposit facility rate will be lowered when the inflation rate credibly converges to its target. The first rate cut was made in June 2024, when the ECB's Governing Council decided to reduce the deposit facility rate from 4% to 3.75% prompted by an improvement in the inflation outlook.

3.1.2 Impact on interest rates on bank loans

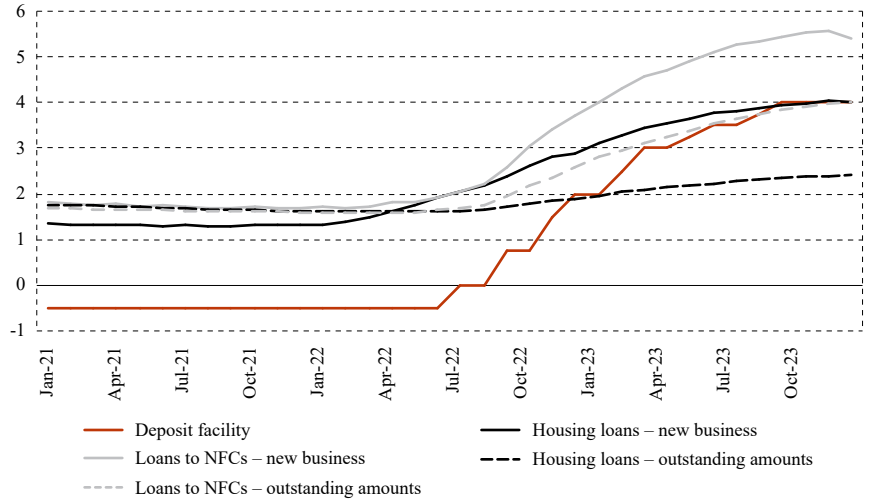
Interest rates on loans responded quickly to monetary policy tightening, which was due to two main reasons. First, given that the deposit facility represented a very safe and profitable alternative investment option, interest rates on new loans moved up in line with the deposit facility rate. Banks simply had no reason to grant new loans – at least not short-term ones – at an interest rate below the rate they would earn by placing funds instead in the deposit facility[6]. Second, as the pass-through of ECB policy rate hikes to money market rates was strong and swift, interest rates on outstanding, variable-rate loans linked to benchmark rates such as €STR and EURIBOR rose automatically, thereby boosting banks' interest

[6] On the other hand, it can be economically reasonable to issue a long-term loan with a fixed interest rate below the deposit facility rate if the lender expects the deposit facility rate to fall during the repayment of the loan. Indeed, in some euro area member states, interest rates on new housing loans remained below the deposit facility rate throughout the monetary policy tightening cycle.

income.[7] Therefore, both new loans and outstanding variable-rate loans generated more interest income for euro area banks after the ECB began to tighten its monetary policy. As shown in figure 13, the transmission of higher ECB policy rates to lending rates was more pronounced in the case of corporate loans due to their typically shorter maturities and less frequent use of fixed-rate contracts compared to housing loans. The degree to which banks' interest income was boosted by higher lending rates varied across countries depending on the interest rate composition of outstanding bank loans, in the sense that banks' interest income rose the most in countries where variable-rate loans were predominant. The cross-country differences in this respect are explored in more detail in section 3.2.

FIGURE 13

ECB's deposit facility rate and bank lending rates in the euro area (in %)



Source: ECB.

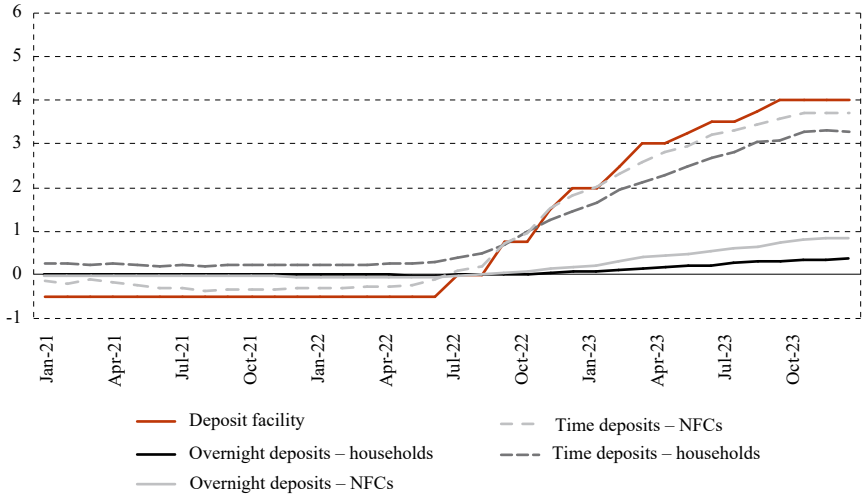
3.1.3 Impact on interest rates on deposits

While euro area banks' interest income rose sharply in line with the ECB's key policy rate, interest expenses responded more gradually, allowing banks to enjoy comfortable interest margins for some time (Grodzicki et al., 2023; Adalid, Lampe and Scopel, 2023). Figure 14 shows that, at the euro area level, the transmission of higher ECB policy rates to interest rates on time deposits was quite strong. There were some differences in the speed of transmission across countries but, on aggregate, interest rates on new time deposits, especially those of the corporate sector, went up sharply as the ECB tightened its policy stance.

[7] Due to hedging, some banks were able to benefit from interest rate increases even on the basis of outstanding loans granted at a fixed interest rate. In particular, Dries et al. (2022) noted that euro area banks increased their reliance on interest rate derivatives since inflation started to rise in early 2021 in order to hedge loans with fixed interest rates against the expected shift in monetary policy.

FIGURE 14

ECB's deposit facility rate and bank deposit rates, new business (in %)

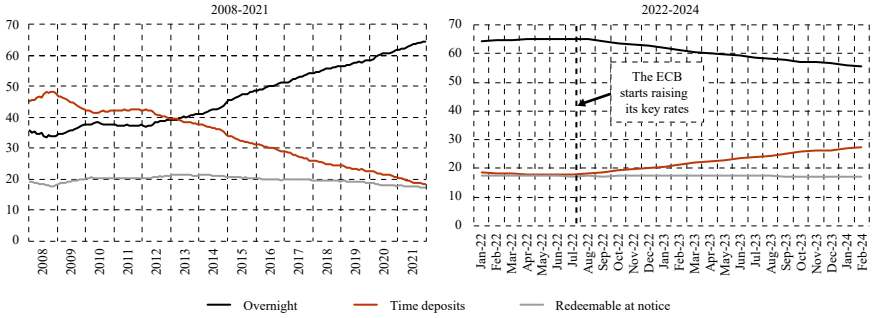


Source: ECB.

In contrast, the pass-through to interest rates on overnight deposits remained limited, as is usually the case. The weak pass-through to overnight deposit rates seems to have been a major factor behind the widening of banks' net interest margins since mid-2022. Before the global financial crisis of 2008-09, overnight deposits accounted for approximately one third of total deposits in euro area banks, which was lower than the relative share of time deposits (figure 15). The importance of overnight deposits as a source of financing for euro area banks increased substantially in the aftermath of the global financial crisis, as interest rates on time deposits fell to virtually zero driven by the persistently loose monetary policy. By the moment the ECB started raising its rates in mid-2022, overnight deposits amounted to almost two thirds of total deposits. The fact that such a large share of total deposits continued to carry a very low interest rate even after the ECB sharply tightened its monetary policy enabled banks to enjoy strong net interest margins for some time. However, the composition of deposits began to change gradually following the shift in the ECB's policy stance, as depositors transferred funds from overnight to time deposits in order to take advantage of higher interest rates (figure 15). As this process continues, banks' interest expenses will rise, causing their interest margins to narrow over time.

FIGURE 15

Composition of deposits in euro area banks (in %)



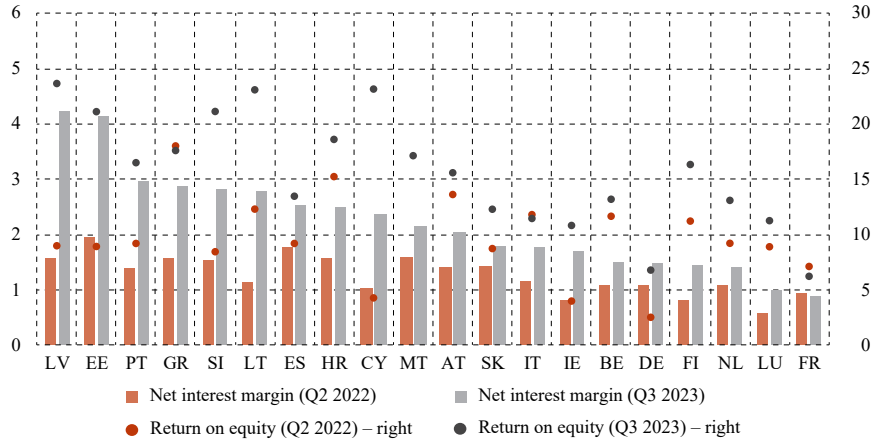
Source: ECB.

3.2 DIFFERENCES IN BANK PROFITABILITY DYNAMICS ACROSS COUNTRIES

While the profitability of euro area banks improved markedly on an aggregate level after the ECB's policy rate hikes began in July 2022, the impact of higher interest rates on bank profitability indicators varied widely across national banking systems. As shown in figure 16, the Baltic countries, Cyprus and Slovenia registered the largest increases in banks' net interest margins, with their banking system's aggregate return on equity surpassing 20 percent in the third quarter of 2023. In contrast, German, Belgian and Dutch banks saw a more moderate rise in profits, while French banks experienced a deterioration in their profitability indicators.

FIGURE 16

Banks' net interest margin and return on equity (in %)*



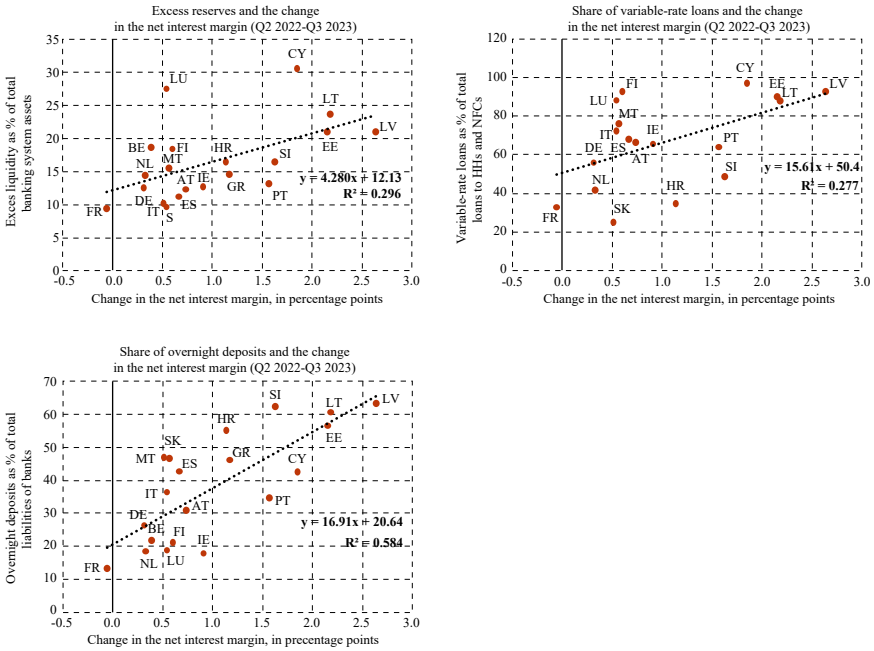
** Return on equity is calculated by dividing the annualized quarterly net profit/loss after tax by total equity at the end of the reference quarter.*

Sources: ECB, author's calculations.

It is therefore interesting to examine why banks from some euro area countries benefited more from higher interest rates than banks from other countries. In the analysis, it seems appropriate to consider the factors that appear to have boosted bank profits in the euro area as a whole, namely the initial size of excess reserves, the initial share of variable-rate loans in total loans and the initial share of overnight deposits in total liabilities. Figure 17 shows that these factors indeed explain reasonably well the cross-country variation in banks' net interest margins since mid-2022.

FIGURE 17

Factors driving the increase in net interest margins of euro area banks



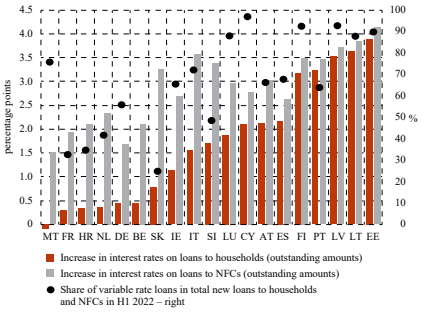
Notes: The values for excess reserves (as percentage of total assets) and overnight deposits (as percentage of total liabilities) refer to June 2022 data, while the values for variable-rate loans (as percentage of total loans) refer to the average for the first six months of 2022. Excess reserves are calculated as the sum of funds held by banks in their current accounts above the minimum reserve requirements and funds held in the ECB's deposit facility.

Sources: ECB, author's calculations.

The relation between the change in the net interest margin and each of these three factors is positive, as expected. The increase in the net interest margin was the stronger, the higher the initial level of excess reserves, and the higher the shares of variable-rate loans and overnight deposits in total loans and liabilities, respectively. Banks from the Baltic countries were well positioned to benefit from higher interest rates, as they had high initial values for all three of these variables. In particular, given that around 90% of all bank loans in these countries have a variable interest rate, the Baltic countries experienced the strongest increase in interest rates on outstanding loans, which gave a key impetus to banks' interest income (figure 18).

FIGURE 18

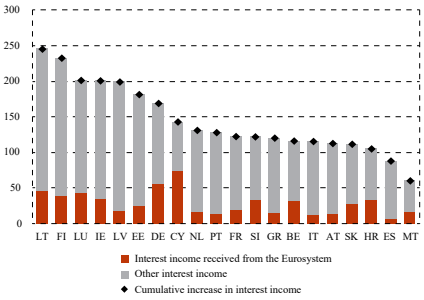
*Cumulative increase in interest rates on outstanding private sector loans**



** Refers to the cumulative increase in the period between June 2022 and December 2023.*

FIGURE 19

Contributions to the overall increase in gross interest income (in %)*



** Compares banks' quarterly gross interest income in Q3 2023 with their quarterly gross interest income in Q2 2022.*

Sources: ECB, author's calculations.

Croatia, on the other hand, was among the countries with the weakest transmission of ECB policy rate hikes to lending rates.[8] Despite this, Croatian banks recorded a marked widening of their net interest margins, supported by substantial interest income earned on their large stocks of excess reserves and the fact that interest expenses grew more slowly, reflecting the high share of cheap overnight deposits in their total liabilities (figures 19 and 20). The same applies to Slovenian banks, which also benefited from a combination of abundant excess reserves and the dominance of overnight deposits as a source of funding. German and Dutch banks, in contrast, saw a much milder improvement in their net interest margins, while French banks experienced a fall in their interest margins. The main reason why these banks benefited less from higher interest rates than banks from other countries is that in these advanced banking systems retail overnight deposits – which respond very slowly to central bank policy rate changes – account for only a small fraction of total liabilities (figure 20). Therefore, when the ECB began to tighten its monetary policy, their cost of financing increased sharply in line with interest income, which in turn prevented a stronger widening in their net interest margins.

[8] This was a result of several country-specific factors. First, Croatia introduced the euro on 1 January 2023, which was associated with a significant increase in excess liquidity, given that the reserve requirement rate – which was 9% until then – had to be brought down to 1% to be in line with the ECB's calibration. The additional liquidity freed up on this occasion allowed banks to enjoy low funding costs even after the ECB started raising its key rates, which indirectly enabled them to earn a solid net interest income without increasing lending rates significantly. Second, in the previous years when monetary policy was highly accommodative, most housing loans were issued at an interest rate that was fixed for at least part of the repayment period. Third, prior to the adoption of the euro, the vast majority of variable-rate loans were granted using the National Reference Rate as benchmark, which is quite stable over time. For this reason, the sharp increase in EURIBOR did not have a material impact on variable-rate loans in the domestic market. Finally, the Croatian legal framework contains provisions that limit the amount by which banks can raise interest rates on variable-rate loans. These provisions, which apply to both outstanding and new loans to households, further limited banks' ability to pass on higher money market interest rates to their customers (CNB, 2023).

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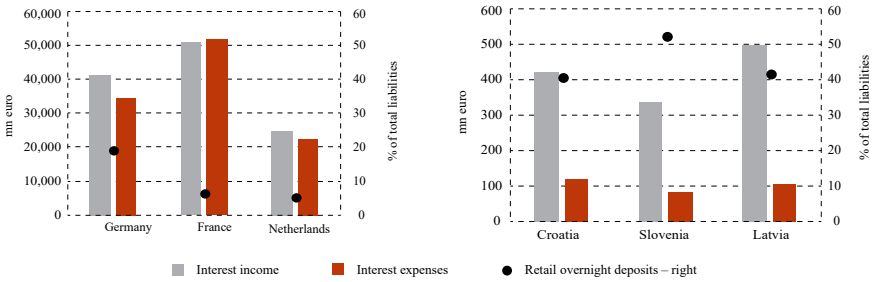
FIGURE 20

Absolute change in banks' quarterly interest income and expenses (Q3 2023 vs. Q2 2022) and the initial share of retail overnight deposits in total liabilities



Sources: ECB, author's calculations.

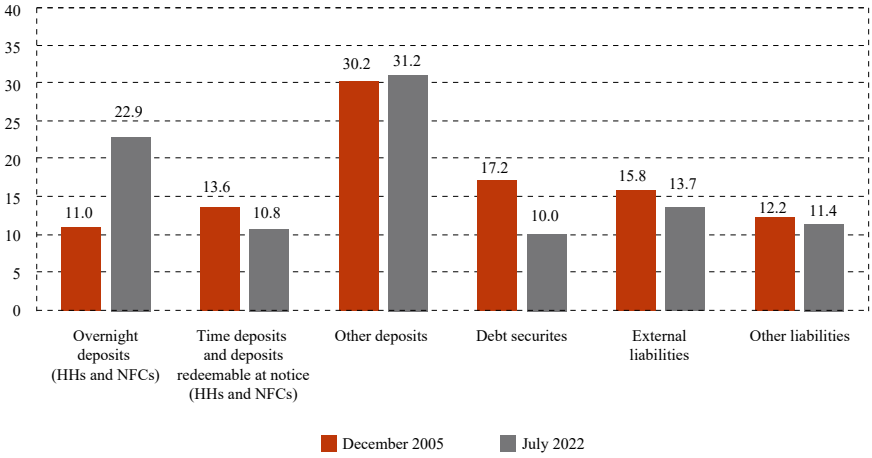
3.3 COMPARISON WITH THE PREVIOUS MONETARY POLICY TIGHTENING CYCLE

The impact of the recent ECB policy rate hikes on bank profitability was much more pronounced than in the previous cycle of monetary policy tightening that took place before the global financial crisis. Specifically, from December 2005 to July 2008, the ECB raised its key interest rates by a cumulative 200 basis points in order to preserve price stability in the context of robust economic expansion. Despite the rising key interest rates, euro area banks did not see their net interest income increase. In fact, the net interest income of euro area banks declined gradually after 2005 as interest expenses grew more rapidly than their interest income (ECB, 2007).

The differences in bank profitability dynamics between the tightening cycle of 2005-08 and the tightening cycle of 2022-23 can be attributed to specific market conditions prevailing in these two periods. For example, in the period leading up to the global financial crisis, euro area banks operated in an environment of scarce reserves. At that time, the ECB implemented its monetary policy by using a corridor system, whereby the supply of reserves provided to the banking system was calibrated precisely to keep the short-term money market rate very close to the key interest rate. In this setup, excess reserves were very low – only around 1 billion euro when the ECB began raising policy rates in December 2005. Following the global financial crisis, the ECB switched to a *de facto* floor system with abundant reserves. As mentioned earlier, excess reserves were as high as 4.5 trillion euro in mid-2022 when the ECB started its recent tightening cycle.

FIGURE 21

Composition of funding of euro area banks at the beginning of the last two ECB's tightening cycles (percentage of total liabilities)



Sources: ECB, author's calculations.

The size of excess reserves is relevant for bank profitability because it can affect the composition and overall cost of bank funding: when reserves are scarce, competition among banks for deposits will be stiff, which will in turn put upward pressure on deposit rates, while also encouraging banks to rely on alternative, wholesale sources of funding. Conversely, when reserves are abundant, as they have been in recent years, the supply of client deposits – and, possibly, longer-term central bank funding – will be large, and banks will have less need for wholesale funding sources that are more expensive. As shown in figure 21, there was indeed a noticeable difference in the composition of euro area banks' funding between the two last ECB's tightening cycles. Specifically, the share of overnight deposits in total bank liabilities was twice as high in 2022 as in 2005, while the share of issued debt securities was notably lower. This can partly explain the differences in the dynamics of bank profitability between the two cycles. As noted earlier, large stocks of overnight deposits have been a major factor supporting the profitability of euro area banks since mid-2022, as the weak pass-through of ECB rate hikes to overnight deposits rates mitigated the overall increase in banks' interest expenses. In contrast, in the tightening cycle of 2005-08, overnight deposits could not support banks' net interest margins in the same way because their share in total bank liabilities was significantly lower. Adalid, Lampe and Scopel (2023) show that the relative shares of overnight deposits do explain well the differences in deposit betas – the strength of the transmission of the ECB policy rate changes to deposit rates – between the ECB's last two tightening cycles.

Another part of the explanation lies in the fact that euro area banks were in the past more reliant on wholesale funding markets – such as the interbank money market and the bond market – which respond very rapidly to central bank policy rate

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changes. Therefore, when the ECB tightened its policy stance starting from December 2005, banks very soon felt the impact through higher funding costs. Strong competition for deposits in a context of scarce reserves contributed as well to the overall increase in funding costs in this period (ECB, 2007). Interest income, on the other hand, did not increase sufficiently to compensate for higher interest expenses, given that the yield curve flattened as monetary policy became tighter. That is to say, due to strong global demand for long-term assets, yields on long-term assets remained compressed despite the rising short-term rates, thereby diminishing banks' returns from maturity transformation (ECB, 2006). Moreover, since excess reserves were very low at the time, banks could not benefit significantly from increased remuneration of reserves through the deposit facility, as they did in the 2022-23 tightening cycle.

In conclusion, taking into account the performance of euro area banks during the two last cycles of monetary policy tightening, it can be argued that the ability of banks to benefit from higher policy rates was much stronger in the most recent cycle. The combination of abundant excess reserves on the asset side and large stocks of low-cost overnight deposits on the liability side enabled euro area banks to enjoy a substantial increase in net interest margins and overall profitability from mid-2022. However, the elevated interest margins and profits will moderate over time, as the Eurosystem's balance sheet continues to shrink and as depositors shift funds from overnight deposits to time deposits that offer better returns.

4 LESSONS LEARNED IN THE AFTERMATH OF THE PANDEMIC CRISIS

The inflationary shock that took place following the COVID-19 pandemic will at least partly change the way central banks and governments respond to major crises in the future. Every crisis offers specific lessons that can be studied by policymakers and academics after the crisis is over. Was the overall size of support measures adequate, insufficient or excessive? Which of the policy measures adopted were effective and which were not? Was there a sufficient degree of coordination between different policymakers within the country, and between policymakers internationally?

For example, the main lesson of the Great Depression of 1929-1933 was that monetary and fiscal policies should be used vigorously in times of crisis to prevent an ordinary recession from morphing into a deep economic depression. The Great Depression also illustrated that protectionist policies do not enable individual countries to cope better with a major recession (Crucini and Kahn, 1996). On the other hand, the experience of the global financial crisis of 2008-09 has taught us that a premature withdrawal of policy support measures can be detrimental to economic recovery after a major crisis (Kelton, 2015; Independent Evaluation Office, 2014).

In line with this lesson, during the COVID-19 pandemic, massive policy support measures remained in place even after the worst phase of the economic turmoil had ended. This applies to both fiscal and monetary policy. In the US, the government

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ran a highly expansionary fiscal policy in 2020 and 2021, whereby the fiscal effort was equally strong in both years (Whelan, 2023). Fiscal policy was expansionary also in the euro area, but the overall size of fiscal support – measured by the change in structural deficit – was more limited compared to the US. When it comes to monetary policy, both the ECB and the Federal Reserve kept their pandemic-related emergency measures in place until early 2022. In March 2022, both central banks ended their net purchases of government bonds, and in the same month, the Fed also increased for the first time its key policy rate in response to rising inflation. The ECB followed suit four months later, in July 2022, when the inflation rate in the euro area had already reached 8.9%. In contrast, a number of emerging market central banks tightened their monetary policy much earlier, in the first half of 2021, as soon as inflation started to soar (Cavallino et al., 2022; Evdokimova et al., 2023). The reason for such a late reaction by the Fed and the ECB was their initial belief that inflationary pressures were a transitory phenomenon associated primarily with global supply bottlenecks.

With the benefit of hindsight, it is clear that the policy response to the pandemic crisis contained some errors, which exacerbated the rise in inflation that followed. In particular, the size and duration of particular support measures in the aftermath of the COVID-19 pandemic appear to have been excessive. For example, as already well documented in the literature, the exceptionally strong fiscal expansion in the US was one of the key drivers of the inflation spike in the second half of 2021 (De Soyres, Santacreu and Young, 2022; Hodge et al., 2022). Having learned this lesson, policymakers should not ignore possible unintended inflationary effects when designing fiscal stimulus packages in the future.

Another important lesson concerns the major central banks. While their balance sheets were already very large at the moment the pandemic crisis broke out, from that point on the ECB and the Fed further aggressively expanded their balance through asset purchases and other unconventional measures. Such interventions were necessary and very effective during the acute phase of the turmoil in the first half of 2020, but it is highly questionable whether they should have remained in place all the way until March 2022. Due to prolonged quantitative easing, the two central banks found themselves in an uncomfortable position when inflation suddenly started to rise in 2021-22. In order to achieve the desired tightening of financial conditions and curb inflationary pressures, the ECB and the Fed had to significantly increase the interest rate applied to the excess reserves of commercial banks. The large payments of interest to commercial banks were very unpopular because they boosted banks' profits at a time when the rest of the economy was faced with rising prices and increasingly tight financing conditions.

In short, the experience since the outbreak of the pandemic crisis has taught us that even in the most advanced economies – that have a virtually unlimited capacity to borrow and to create money – there are certain limits to what expansionary fiscal and monetary policy can do. Inflation is a factor that should and will be

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taken more seriously next time. Determining the appropriate level of policy support, which will ensure a swift recovery after the crisis without triggering inflationary pressures, will not be an easy task, though.

5 CONCLUSION

The long period of quantitative easing from 2015 to early 2022 was challenging for banks as interest income, their main source of revenue, declined significantly due to falling interest rates. However, they managed to adapt successfully to this environment. By lowering to zero the interest rates applied to customer deposits and by making extensive use of the cheap funding provided by the ECB through its longer-term refinancing operations, banks reduced their interest expenses sufficiently to fully compensate for the loss of interest income. Owing to this, their net interest income remained almost unchanged in absolute terms compared to the period before the start of quantitative easing. At the same time, banks felt the positive effects of favourable economic conditions, particularly through increased lending volumes and very low provisioning costs, which also supported their earnings.

The profitability of banks increased significantly after the ECB began to tighten its monetary policy in mid-2022 in order to contain inflationary pressures. The fact that the banking system was flooded with liquidity as a result of several years of quantitative easing amplified the impact of higher ECB policy rates on bank profits. In particular, the availability of abundant excess liquidity made it possible for banks to enjoy higher interest income immediately after the ECB raised its key rates, while it also indirectly contained the rise in interest expenses. Specifically, as the interest rate applied to the deposit facility was brought into positive territory in September 2022, banks immediately put more than 4.5 trillion euro of their excess liquidity in the deposit facility in order to earn interest income. When the deposit facility rate reached 4% in the second half of 2023, euro area banks were earning close to 400 million euro in gross interest per day on this basis. Never before had banks had the opportunity to earn so much without exposing themselves to any risk. Interest rates on bank loans, both new loans and variable-rate outstanding loans, rose in line with the ECB's key policy rate. The impact of higher lending rates on banks' net interest margins was particularly strong in countries where loans with a variable interest rate make up a very large share of total bank loans.

In contrast, the pass-through to deposit rates was much weaker. The slow response of deposit rates to monetary policy tightening can also be partly attributed to the environment of abundant excess liquidity. Having sufficient liquidity at their disposal, banks could, at least in the beginning, afford to raise interest rates on deposits more gradually than on loans, without worrying about possible outflows. While interest rates on time deposits did increase in line with higher ECB policy rates, the pass-through to overnight deposit rates was very weak. Given that overnight deposits accounted for almost two thirds of total deposits in mid-2022, the low pass-through of policy rate hikes to overnight deposits was a major factor behind banks' strong net interest margins. The composition of deposits started changing from

mid-2022 in favour of time deposits as bank clients took advantage of higher interest rates on these deposits, but the transition was gradual. This enabled banks to enjoy relatively low funding costs and thereby strong net interest margins for a while. However, the ability of euro area banks to generate unusually strong profits will diminish over time as the transition of funds from overnight to time deposits continues and as the ECB gradually eases its currently tight monetary policy stance.

There is no doubt that the experience gained in the aftermath of the COVID-19 pandemic will affect the way governments and major central banks respond to severe crises in the future. It illustrated clearly that even in the most advanced economies – that have seemingly infinite capacity to borrow and create money – there are objective limits to what fiscal and monetary interventions can achieve. In particular, the size of the fiscal stimulus adopted by the US government to facilitate economic recovery after the pandemic appears to have been excessive, as it was one of the triggers of the abrupt rise in inflation in 2021. The risk of unintended inflationary effects should be taken more seriously when preparing fiscal responses to future crises.

In addition, with the benefit of hindsight, the implementation of large-scale asset purchase programs seemed to have lasted too long both in the US and the euro area, which made it more difficult for their central banks to tackle inflation once it spiked. While the ECB and the Fed successfully tightened their monetary policies starting from 2022, this tightening came at a cost of a substantial transfer of interest to commercial banks which was both costly and highly unpopular. Having learned this lesson, it seems unlikely that their balance sheets will expand again to the levels reached following the COVID-19 pandemic. Both central banks have by now started downsizing their balance sheets, with the aim of moving permanently to regimes with less abundant reserves.

Disclosure statement

The author has no conflict of interest to declare.

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