Periodical Part

Financial stability report. 45 (June 2023)

Financial stability report

OESTERREICHISCHE NATIONALBANK
EUROSYSTEM

FINANCIAL STABILITY REPORT 45

Security through stability.

JUNE 2023

The OeNB's semiannual Financial Stability Report provides regular analyses of Austrian and international developments with an impact on financial stability. In addition, it includes studies offering in-depth insights into specific topics related to financial stability.

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Content

Editorial close: May 16, 2023, and May 3, 2023 (key financial indicators).

Financial stability means that the financial system – financial intermediaries, financial markets and financial infrastructures – is capable of ensuring the efficient allocation of financial resources and fulfilling its key macroeconomic functions even if financial imbalances and shocks occur. Under conditions of financial stability, economic agents have confidence in the banking system and have ready access to financial services, such as payments, lending, deposits and hedging.

Reports

Management summary[1]

Financing conditions tighten in line with monetary policy

While the European economy has proved resilient to the initial effects of the war in Ukraine, persistent inflation, the effects of monetary tightening and high geopolitical uncertainties now weigh on the outlook. Since mid-2022, economic growth in Austria has decelerated and companies and households are confronted with tighter financing conditions. Uncertainty about economic developments has been dampening companies' demand for loans, as they are more cautious about investments. Given that most loans to the corporate sector are variable rate loans, companies' debt-servicing costs are rising significantly. However, due to a marked increase in companies' profits in 2022, their debt-to-income ratio went down last year, sinking below historic levels by year-end. Still, high input costs, tightening financial conditions and the clouded economic outlook, which have increased potential credit risks, are particularly challenging for more vulnerable firms. Amid rapidly rising interest rates and banks' tightening supply policies, the growth of bank lending to Austrian households has been decelerating since mid-2022. Apart from housing loans, where lending growth slowed down most strongly, consumption and other loans have also exhibited declining growth rates. Dynamics in Austria's residential real estate market have likewise been slowing. Credit default rates still remain low. To preserve this, binding borrower-based measures are key to ensuring sustainable lending practices.

Austrian banks benefited from rising interest rates

In 2022, the Austrian banking sector profited from rising interest rates, as banks passed them on to both new borrowers and borrowers with variable rate loans, while deposit repricing was still slow. Given that fees and commissions also grew markedly, credit quality remained good and profits from Russia were exceptionally high, the Austrian banking sector reported a record profit of more than EUR 10 billion. Half of it came from subsidiaries in Central, Eastern and Southeastern Europe (CESEE). The recent turmoil following bank failures in the United States and Switzerland had rather small (and only indirect) effects on the Austrian banking sector, whose exposure to debt securities is relatively limited and whose liquidity position is solid. Furthermore, the sector's capitalization has improved, mirrored in a CET1 ratio above 16%. It is noteworthy, however, that the largest banks' capital ratios trail behind those of their smaller competitors. Macroprudential supervisors in Austria decided at the end of 2022 to phase in further structural capital buffer requirements until 2024. These efforts support favorable external assessments, as confirmed by a rating by S&P Global Ratings that ranks the Austrian banking industry among the most stable worldwide.

Lending for residential real estate (RRE) is marked by a fragile environment, with prices having doubled in Austria over the past ten years and interest rates starting to rise rapidly in 2022. These developments are reducing the affordability of RRE and related loans. In the fourth quarter of 2022, the OeNB RRE price index declined for the first time in many years and dropped further at the beginning of 2023. Moreover, new lending volumes decreased substantially amid rapidly

[1] *For a German-language management summary of the Financial Stability Report 45, see Finanzmarktstabilitätsbericht - Oesterreichische Nationalbank (OeNB).*

increasing interest rates. A sizeable portion of new mortgages continued to be offered at unsustainable debt service-to-income and loan-to-value ratios before compliance with borrower-based measures was made mandatory. Also, the previous trend of increased fixed rate borrowing reversed in 2022, with half of new RRE lending being granted at variable rates again. These developments underline the importance of sustainable lending standards. Last year, borrower-based instruments became binding to maintain a high-quality loan portfolio and address potential systemic risks from RRE financing. As of August 2022, Austrian banks must adhere to a legally binding regulation when granting RRE loans. The provisions include upper limits for loan-to-value ratios (90%), debt service-to-income ratios (40%) and loan maturities (35 years). Plus, according to a recent amendment, bridge loans are excluded and the de minimis threshold for housing loans to couples has been raised. Lending standards have improved markedly as a consequence. Finally, commercial real estate (CRE) lending also warrants increased scrutiny, as headwinds are arising from higher interest rate levels as well as structural shifts, such as the increasing importance of environmental building criteria, online shopping and remote work.

Recommendations by the OeNB

Past efforts by Austrian banks and forward-looking prudential measures to raise banks' risk-bearing capacity have paid off. In the years following the global financial crisis, Austrian banks have significantly improved their capital ratios and funding structures. In 2022, their profits reached record levels, while credit risks stood at historic lows. Persistent inflationary pressures and the consequences of monetary policy tightening as well as the war in Ukraine now pose substantial challenges for the Austrian banking sector, however. The situation might deteriorate if the benign effects of higher interest rates faded, credit risk costs rose or operations in Russia ceased to be an important profit driver. Given today's uncertain macrofinancial and geopolitical conditions, the OeNB recommends that banks further strengthen financial stability by taking the following measures:

- Strengthen the capital base by exercising restraint regarding profit distributions.
- Adhere to sustainable lending standards for residential and commercial real estate financing.
- Ensure that credit and interest rate risk management practices adequately reflect changes in the risk environment, especially considering the past long period of low risks and interest rates.
- Continue efforts to improve cost efficiency to ensure structurally strong profitability.
- Further develop and implement strategies to deal with the challenges of new information technologies, increased cyber risks and climate change.

The economic outlook remains characterized by high and persistent inflationary pressures

Global growth held back amid persistent inflation, monetary tightening and high uncertainty

The global economy showed some resilience in the second half of 2022, but fragilities have started to materialize. Despite price pressures, tightening monetary and financial conditions and increasing geopolitical tensions, the global economy showed some resilience on the back of the fiscal support provided during the pandemic and strong pent-up demand. Nevertheless, fragilities have started to materialize as persistent inflation and increasing borrowing costs revealed financial stability risk, while the world economy is facing increasing geopolitical fragmentation and high levels of both private and sovereign debt. Moreover, energy security and climate concerns are still looming. Due to the challenges ahead and the highly uncertain global economic outlook, the International Monetary Fund (IMF) has revised downward the world growth forecast, now projecting a deceleration from 3.4% in 2022 to 2.8% in 2023. According to the IMF, advanced economies are going to experience a very pronounced slowdown, from 2.7% in 2022 to 1.3% in 2023 in the baseline scenario. In a more adverse scenario with further financial stress materializing, growth is expected to be even lower.

The global economic outlook remains characterized by high and persistent inflationary pressures. Energy price shocks hitting in 2022, stronger than expected domestic conditions and tight labor markets have put further pressure on prices and wages after the pandemic and have caused global inflation to reach its highest level since the 1980s, which weighs on the cost of living of households, especially those on lower incomes. As a response to high and persistent

Table 1.1

GDP growth and inflation forecasts

	April 2023 IMF WEO projections			
	Real GDP growth		Annual HICP/CPI inflation	
	2023	2024	2023	2024
	%			
Euro area	0.8	1.4	5.3	2.9
UK	–0.3	1.0	6.8	3.0
Japan	1.3	1.0	2.7	2.2
China	5.2	4.5	2.0	2.2
USA	1.6	1.1	4.5	2.3
World	2.8	3.0	7.0	4.9

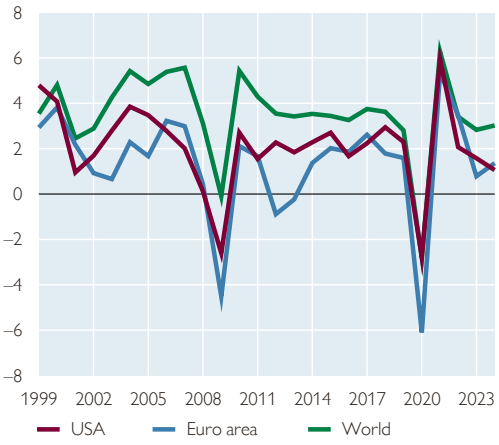
Source: IMF.

Note: WEO = World Economic Outlook.

Chart 1.1

World GDP

Annual increase in %



Source: Macrobond, IMF.

Note: Forecast data are based on the April 2023 IMF World Economic Outlook.

inflation, central banks around the world have undertaken monetary policy tightening unprecedented in its speed, size and width. Due to increasing rates and the fallout from the energy price shock of 2022, global headline inflation peaked in the third quarter of 2022. Nevertheless, inflation remains well above target. Its core component was still on the rise in most advanced economies in March 2023 and is expected to decrease only sluggishly in 2023 and 2024 due to the persistence of second-round effects. Moreover, additional risks are looming on the horizon – the threat of growing commodity prices persists because of renewed pressures to supply chains due to increasing geopolitical fragmentation, possible further energy supply shocks and a rise in demand for commodities from China, which suddenly discontinued its zero-COVID policy in December 2022.[1] All of these factors might put renewed pressure on inflation and, consequently, on monetary authorities that would have to keep interest rates high for longer.

Monetary policy tightening and restrictive financing conditions reveal fragilities in the financial system. The rapid rise of borrowing costs and the asset depreciation accompanying the policy reversal after a decade of ultralow interest rates have revealed financial stability risks. Low interest rates and ample liquidity provision granted after the global financial crisis and additional support during the pandemic have favored the buildup of debt and financial leverage. Global nonfinancial debt rose from 182% to 257% of global GDP between 2008 and 2021 and increasing financial leverage has been observed especially in nonbank financial institutions.[2] Giving rise to the risk of liquidity mismatch, the latter might trigger investor runs and asset fire sales which, in turn, amplify price declines.[3] Financial market volatility has been elevated during the last months; yields on ten-year UK, US and German government debt have increased by over 200 basis points since the start of 2022, currently standing at their highest levels since the global financial crisis. The rapid increases in interest rates on long-term government debt globally and considerably tightened financial conditions could lead to sharp adjustments. Banks hold large portfolios of debt on their balance sheet including long-term government debt and real estate debt the prices of which have been affected since monetary tightening started. Signs of financial distress materialized in September 2022, with the liquidity spiral in UK pension funds caused by the so-called mini-budget, and in the spring of 2023, with the failure of several banks in the USA and of Credit Suisse in Europe, which led to a sharp drop in share prices around the world. While there are concerns that persistent inflation and monetary tightening could cause further stress in credit and financial markets, risks have to date been contained thanks to public intervention, regulatory requirements and the injection of short-term liquidity in the banking sector.

Financing conditions have tightened significantly and some sectors are facing contraction and increasing bankruptcy rates. With the steep

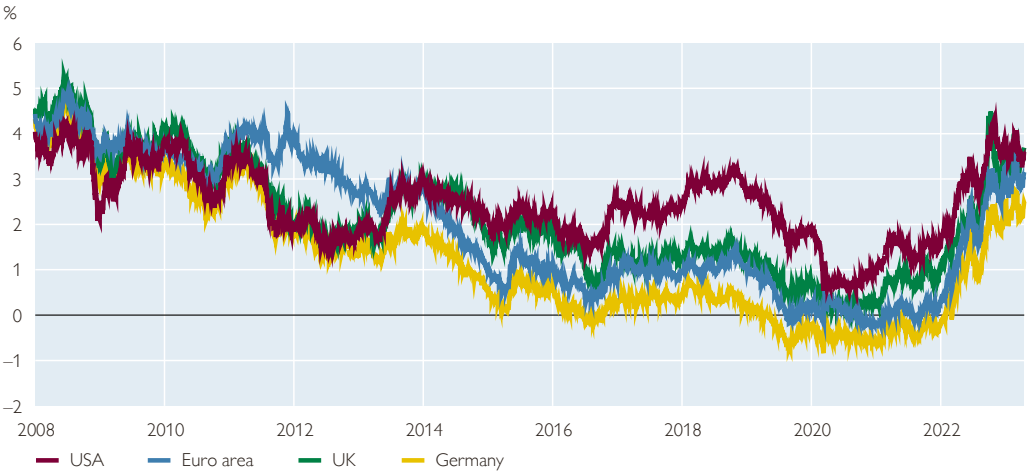
[1] *According to OeNB simulations with the Oxford Global Economics Model, increasing activity in China (with GDP growth going up from 3% in 2022 to 5.2% in 2023 and 4.5% in 2024 as forecast by the IMF in its April 2023 World Economic Outlook) might drive up world oil and gas prices by 8.3% and 4.5%, respectively. As a consequence, global inflation would rise by 0.3 percentage points compared to a scenario in which Chinese growth remains at 2022 levels.*

[2] *See the IMF Global Financial Stability Report (GFSR) of April 2023.*

[3] *According to the IMF GFSR, the main vulnerabilities are related to high financial leverage, liquidity and interconnectedness.*

Chart 1.2

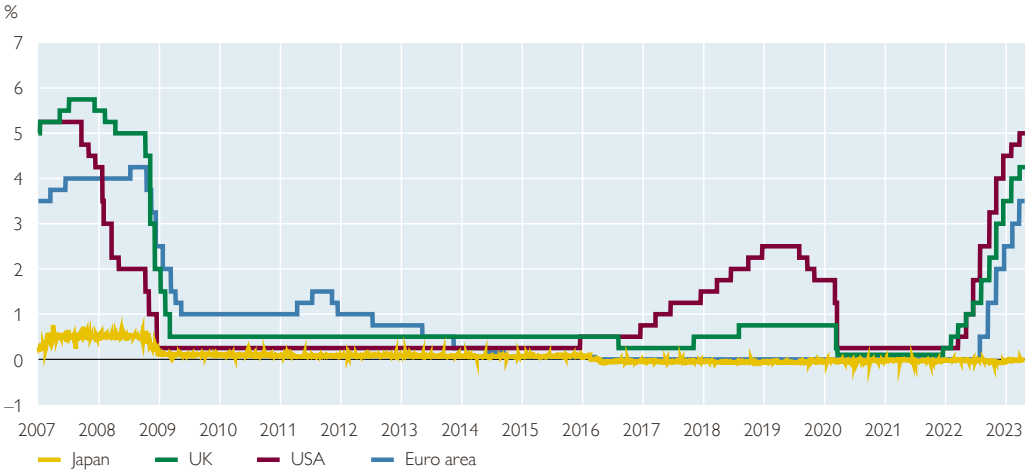
Advanced economies: yield of ten-year government benchmark bonds



Source: Macrobond.

Chart 1.3

Advanced economies: policy rates



Source: Macrobond.

rise of interest rates, credit volumes started to fall, and the real estate sector showed signs of slowdown in most regions in 2022.[4] In the business sector, bankruptcies also started going up in several countries. In Europe, business bankruptcy declarations increased substantially in 2022, reaching the highest levels since the start of data collection in 2015 (see chart 1.4).[5] The sharpest increases in bankruptcy declarations between the third and fourth quarter of 2022 were observed

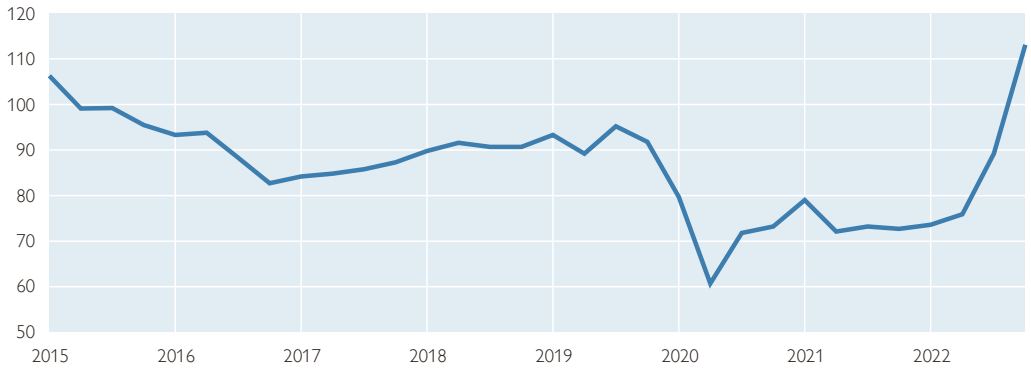
[4] *Real house prices decreased from peaks reached in 2021/early 2022 in most European, American as well as Asian and Pacific developed economies, with a few exceptions (e.g. Japan).*

[5] *Eurostat data. Please note that, in the first two quarters of 2020, bankruptcy declarations decreased on account of the extraordinary financial support provided by governments in the first months of the pandemic.*

Chart 1.4

European Union (EU-27): bankruptcy declarations

Index: 2015 = 100



Source: Eurostat.

in Luxembourg (71.8%), Spain (59.5%) and Hungary (41.6%). Loan defaults are also expected to increase as interest rates rise. For instance, a jump in defaults has recently been observed in the UK as interest rate hikes continue and price increases remain in double-digit territory. Even if defaults and nonperforming loans (NPLs) so far remain below pre-pandemic levels in most countries, the risks of global debt vulnerabilities crystallizing have increased, both in the private sector and at the sovereign level. Low-income and emerging economies are struggling to pay rising debt-servicing costs, while facing high commodity prices and low growth prospects amid weak global demand and limited fiscal space.

Geopolitical tensions, trade fragmentation, commodity markets security risks and climate risks continue to loom ahead. Given the high uncertainty in the economic, financial and geopolitical environment, the outlook has deteriorated over recent months, while downward risks still prevail. The volatility of data and expectations is particularly high and might trigger speculative behavior and increase risk aversion among investors. The currently intensifying geopolitical fragmentation, including the use of sanctions and protectionist measures, also reduces the diversification of investments and poses a risk both to commodity markets security and to investments in the energy transition.[6] Multiple challenges arise from the persistently high inflation and uncertainty about monetary policy reactions, together with reduced opportunities to diversify investments across regions and sectors; this also raises volatility both in the real economy and in financial markets.[7] Moreover, the effect of market fragmentation might be even more pronounced in emerging markets and developing economies which, already dependent on commodity imports and high level of external debt, are more exposed to sudden reversals of cross-border capital flows.

[6] *Both the EU and the USA strongly rely on Chinese imports of critical components for the development of electric vehicles and solar energy devices.*

[7] *The IMF warns that barriers to trade, investment and technological transfer would limit growth and estimates that the long-term cost of trade fragmentation between the USA and China could amount to around 7% of global GDP.*

CESEE: Banking sectors perform reasonably well despite strong headwinds – for growth and inflation – resulting from the war in Ukraine

The war in Ukraine clearly determined economic activity in Central, Eastern and Southeastern Europe (CESEE) in 2022. Average economic growth in the region declined from 7% in 2021 to 0.7% in 2022, mainly driven by contractions of Russian and Ukrainian output.

Even so, economic activity proved to be surprisingly robust to the initial effects of the war in the first half of 2022, at least in the CESEE EU member states. In this period, GDP growth was mainly supported by solid consumer demand, which can be attributed to the earlier boost in savings as people were spending less during the lockdowns, and to favorable labor market conditions. At somewhat below 4% throughout 2022, the average unemployment rate was only marginally above its end-2019 trough. In the middle of the year, both employment and labor participation rates rose to historic highs or even beyond, which translated into strong nominal wage increases. Investment also provided a stable contribution to growth, reflecting high capacity utilization, high corporate financial surpluses, increased inventory accumulation following the restoration of key supply chains and, in some cases, beginning disbursements of EU funds.

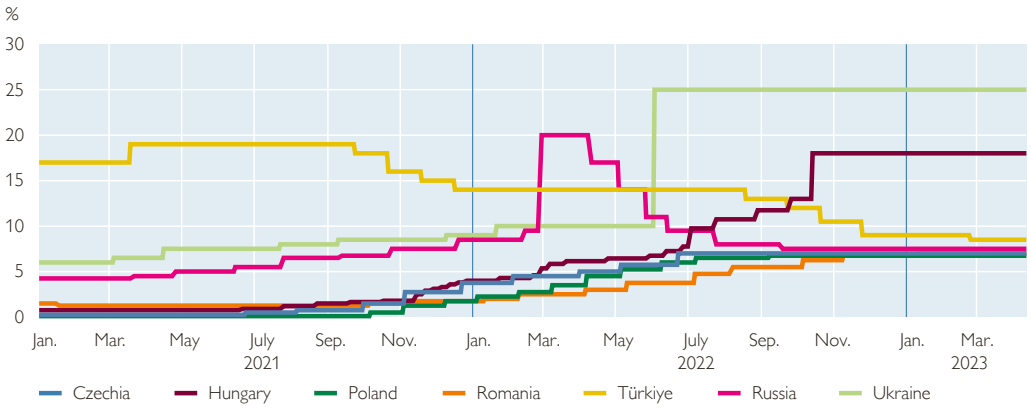
However, as the year 2022 progressed, the economy became a lot less resilient to the effects of the war in Ukraine. Confidence indicators were deteriorating significantly from early summer 2022 onward, with consumer confidence falling to a lower level than at any time during the COVID-19 pandemic. From fall 2022 onward, activity indicators were weakening as well. Almost all segments of the industrial sector were affected by the downturn, in particular export-oriented industries. In the retail sector, sales of everyday goods increased, while sales of durable goods and fuels weakened. The loss of purchasing power in the wake of strong inflation became increasingly apparent as well. As a result, quarter-on-quarter GDP growth largely turned negative in the second half of 2022, with Czechia and Hungary meeting the criteria for a technical recession.

The war in Ukraine fueled inflation in CESEE. It did so by exacerbating supply-demand imbalances in some areas, increasing energy and food prices and significantly weakening, at least temporarily, the external value of some CESEE currencies. This pushed up inflation to the highest level in decades. In contrast to 2021, almost all areas of the consumption basket were affected by inflationary pressures in 2022, which caused core inflation to go up markedly as well. At the end of the year, however, inflation rates stabilized somewhat after lower world market prices for crude oil and country-specific household energy relief packages had led to a slowdown of energy inflation.

CESEE central banks tightened monetary policy in the face of rising inflation and the associated risks of second-round effects as well as the risk of a de-anchoring of inflation expectations. Interest rate hikes not only continued in 2022, but even picked up speed in most countries, also in response to pressures emanating from foreign exchange markets. Ultimately, key interest rates were at a multiyear high at the end of 2022. However, during the year, the underlying conditions for monetary policy became increasingly challenging, as any further interest rate moves had to be weighed against the incipient economic slowdown. The Czech and Polish central banks have therefore refrained from any further interest

Chart 1.5

Selected CESEE countries: policy rates



Source: Macrobond.

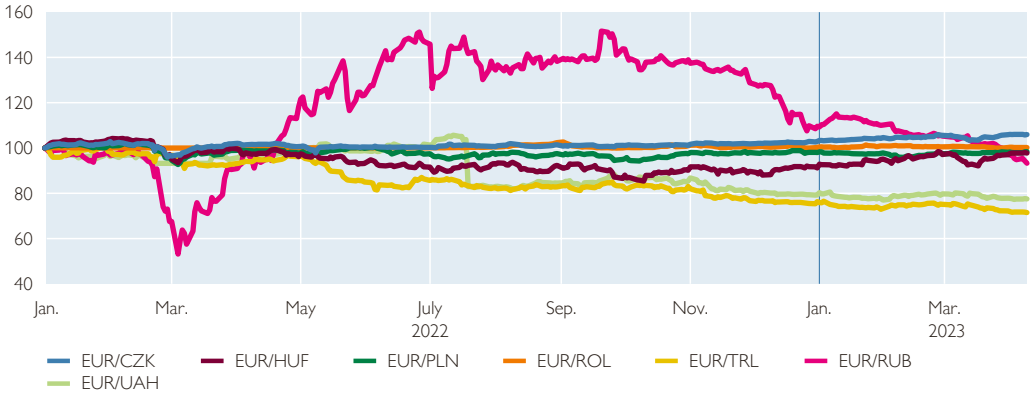
rate hikes since June and September 2022, respectively. And the Hungarian central bank (MNB) has not changed its operational policy rate further since October 2022. However, this was preceded by a strong monetary tightening in reaction to a depreciation of the forint: after the MNB had hiked its operational policy rate by 125 basis points to 13% in late September 2022, it communicated the end of its hiking cycle. This collided with market expectations and the forint came under pressure and, on October 13, 2022, depreciated to its lowest value against the euro (HUF 430 per EUR). The following day, the MNB called an emergency meeting in which it made several adjustments to its rate tool kit and hiked its operational policy rate to 18%. Since then, the policy rate has stayed at this level – the highest since 1998.

Restrictive monetary conditions should have a significantly dampening effect on prices going forward. Real (ex ante) interest rates have turned positive in recent months. The large interest rate differential to the euro area and a more constructive risk environment have supported regional currencies. This applies not

Chart 1.6

Selected CESEE countries: exchange rates versus the euro

Index: Jan. 2022 = 100, rise = appreciation



Source: Macrobond.

least to Hungary, where the forint has recovered significantly from its crash in October 2022 and is currently trading around 2% below its value from the beginning of 2022. This compares to a depreciation of 2% of the Polish złoty, a largely stable development of the Romanian leu and an appreciation of the Czech koruna by 6%.

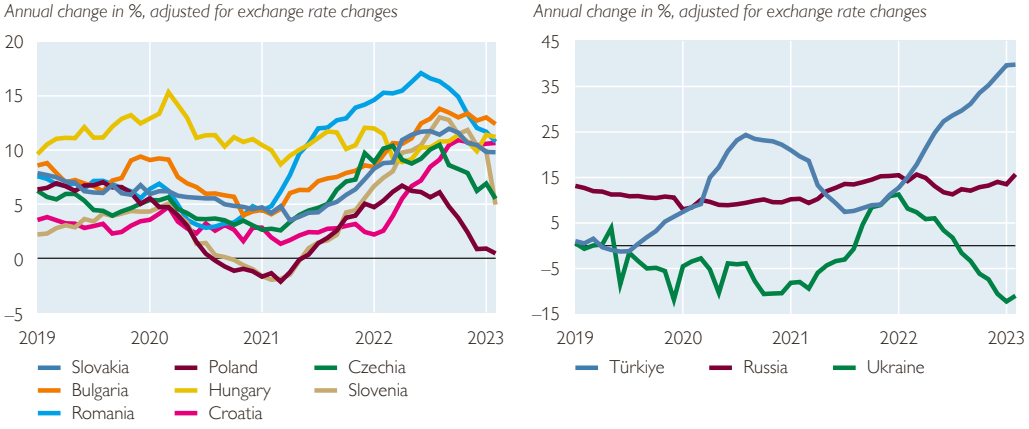
CESEE foreign exchange markets were only temporarily impacted by the most recent turmoil in the global financial sector following troubles at several mid-sized US banks and Credit Suisse. The Czech koruna lost 2.5% and the Hungarian forint 6% of value against the euro in mid-March 2023, but both currencies recovered quickly.

Surveys suggest that credit supply conditions already tightened over the second half of 2022. The most important reason for this development was said to be a weak local market outlook (related to the war in Ukraine, high inflation and the general economic slowdown). All credit segments have been affected by tighter credit standards, though the tightening has been particularly strong in the mortgage market. More resilient than supply, credit demand has increasingly been driven by short-term demand for working capital and debt restructuring. At the same time, geopolitical uncertainty and the weak economic outlook have started to negatively influence long-term fixed investments and consumer confidence. Among households, housing market prospects as well as non-housing-related consumption expenditure are expected to drag down demand further.

This increasingly restrictive momentum in CESEE banking sectors is not yet fully reflected in credit market data. Credit dynamics in the CESEE region decelerated in the second half of 2022 against a slowdown in new lending due to higher interest rates, more early repayments than in previous years and declining volumes in housing transactions. The weakening, however, was not observed across countries and sectors evenly. Credit growth rates, for example, remained broadly stable in Croatia and Hungary amid some deceleration in credit growth to households and largely unabated corporate sector credit dynamics. Meanwhile, credit growth to corporates weighed heavily on credit market developments in Czechia, Poland and Romania.

Chart 1.7

CESEE banking sector: growth of credit to the private sector

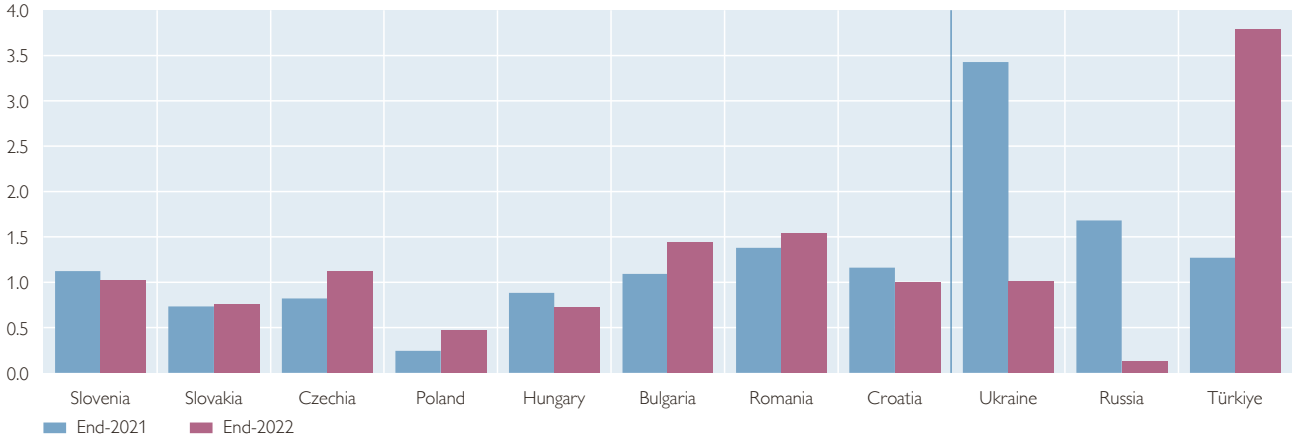


Source: ECB, national central banks.

Chart 1.8

CESEE banking sector: profitability

Return on assets in %



Source: IMF, national central banks, OeNB.

Note: Data based on annual after-tax profits.

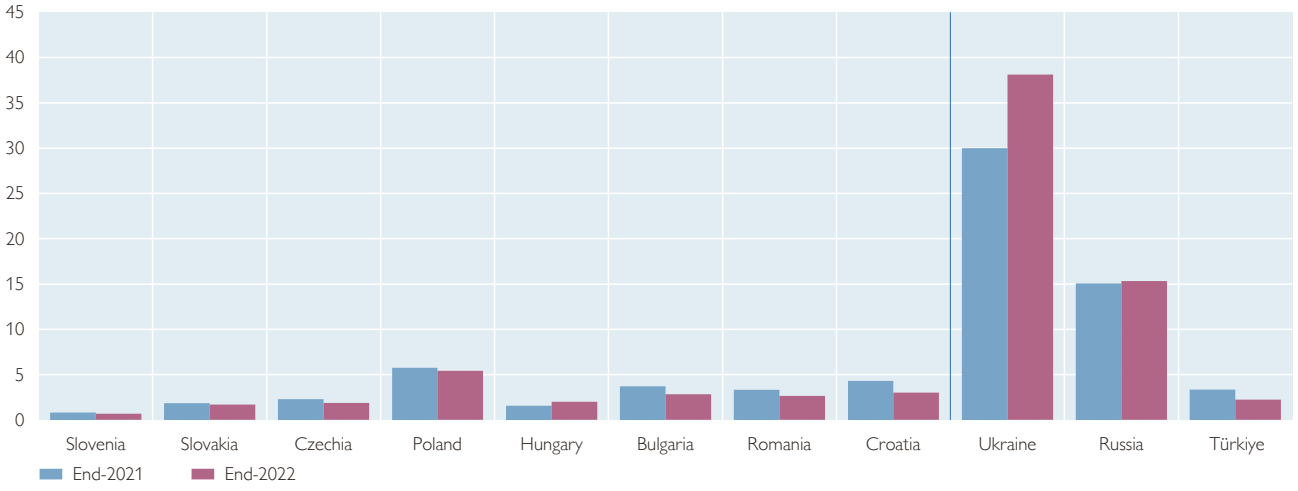
Despite the economic headwinds, the CESEE banking sectors posted generally sound results and balance sheets in 2022. Profitability was bolstered by higher net interest income and – despite partly higher (personnel) expenses and provisioning – remained at around the levels observed in 2021. Credit quality also improved across CESEE, and NPL ratios even reached multiannual lows in some countries. Pockets of vulnerabilities exist, however. While NPL ratios are at a historic low, stage 2 loans (for which banks are less certain of credit quality) are well above NPLs and increasing in several cases (e.g. Czechia, Croatia and Hungary). Furthermore, fast rising interest rates could expose banks with large fixed income assets (as shown by the example of Silicon Valley Bank in the USA). In case of need, for instance due to funding shocks triggered by changing market sentiment, these assets would have to be sold at a loss. Such unrealized losses, often associated with sovereign assets held to maturity, are significant for a number of countries, but high capital adequacy ratios provide a buffer. Tier 1 capital ratios hovered between 16.7% in Hungary and 24% in Croatia at the end of 2022.

Russia's banking sector operated in a difficult environment amid far-reaching international sanctions. The Russian economy has proven remarkably resilient to the international sanctions imposed after Russia's invasion of Ukraine. Once the first shock had been digested, GDP growth bounced back in the second half of 2022. Quarter-on-quarter growth came in at 0.5% in both the third and the fourth quarter, limiting the annual GDP contraction to –2.1% for the whole year. Russian GDP dynamics benefited from higher (war-related) government spending and from substantially higher prices for energy. Despite international sanctions, the country managed to provide the world market with substantial quantities of its energy carriers, in part by redirecting crude oil exports from sanctioning to non-sanctioning countries. With sanctions severely curtailing imports from Western economies, the current account surplus rose to more than

Chart 1.9

CESEE banking sector: credit quality

Nonperforming loans in % of total credit at end of period



Source: IMF, national central banks, OeNB.

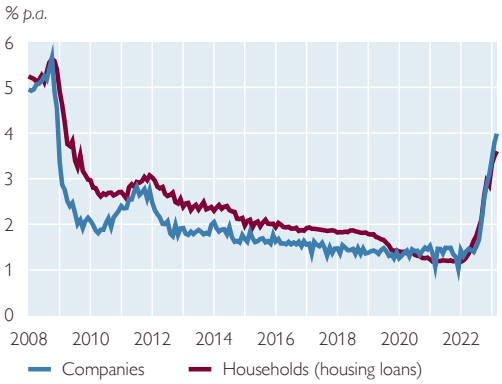
Note: Data are not comparable across countries. Nonperforming loans generally refer to loans that are in arrears for more than 90 days, except for Poland, Russia, Slovakia and Türkiye, where NPLs refer to substandard, doubtful and loss loans.

10% of GDP in 2022. After having depreciated by some 40% against the US dollar within the first week after the invasion, the Russian ruble recovered rather quickly. It was buoyed by a huge hike in the Russian key policy rate (from 9.5% to 20%), several measures targeted at the foreign exchange market and the large current account surplus. The strong currency and subdued domestic demand lowered consumer price growth substantially and allowed the Russian central bank to normalize its policy rate. After several cuts that had started in April 2022, the policy rate has since September 2022 remained at 7.5% or 100 basis points below its pre-war level. More recently, the ruble also returned to its external value observed at the beginning of 2022 as both new EU and the US sanctions on Russia's energy exports in late 2022 and early 2023 weighed on the price of Urals crude oil. Banks continue to do business in a regime of regulatory lenience by the local regulator, flanked by subsidized lending programs related to strategic enterprises, SMEs and households. Mortgage loans continue to benefit from a preferential state program providing generous interest rate subsidies and rates had largely returned to pre-invasion levels. This kept the expansion of credit to the private sector broadly stable throughout 2022. The banking sector had suffered a loss of around USD 25 billion (or about 12% of the sector's regulatory capital) in the first half of 2022, largely due to foreign exchange transaction losses in the wake of the imposition of financial sanctions in February/March 2022 and to sharply rising provisions. Banks subsequently recovered somewhat, thus offsetting the loss in the second half of 2022 and achieving a very modest overall profit of about USD 3 billion in 2022 as a whole (which is less than one-tenth of the 2021 figure). While a number of banks had to raise additional capital, a systemic recapitalization exercise has (so far) not been necessary, according to the Central Bank of the Russian Federation.

Austrian borrowers face tighter financing conditions

Chart 2.1

Austria: lending rates for new loans



Source: OeNB.

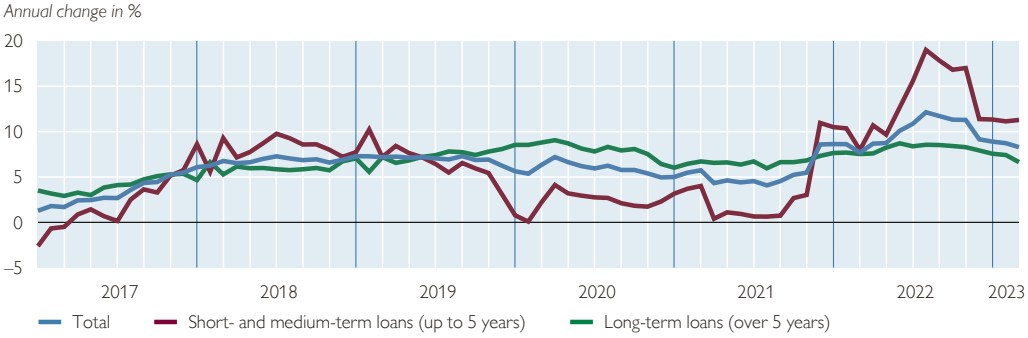
The Austrian economy grew by 5.0% in 2022 and will cool off markedly in 2023. Since mid-2022, economic growth has decelerated due to high inflation rates as a consequence of the war in Ukraine. The slowdown of the global economy has put a damper on export demand, which is expected to remain low in the first half of 2023. High lending rates (see chart 2.1) due to a tightening of monetary policy are dampening (construction) investment. As inflation is expected to come down only modestly over the course of 2023, lending rates are expected to remain high for quite some time. In spite of the economic slowdown, the labor market is very robust, and the unemployment rate remains low. Easing tensions in energy markets are gradually raising economic sentiment among companies and households. In the second half of 2023, the Austrian economy is projected to regain momentum and economic growth will come to around 0.5% for 2023 before accelerating further in 2024. Despite high inventories, disruptions in energy supply remain the main downside risk to activity in the near future.

Rise of loan demand from companies came to a halt

During the last half-year, Austrian companies have been borrowing less. The growth rate of bank loans to companies started to decelerate in September 2022 and amounted to 8.3% (year on year) in March 2023, which is still high relative to historical levels (see chart 2.2). While this development applies to all loan maturities, the declining trend is most visible for short- and medium-term

Chart 2.2

Austria: bank loans to companies



Source: OeNB.

loans (i.e. loans with maturities of up to five years), whose growth had accelerated particularly rapidly in the year before. According to the Austrian results of the euro area bank lending survey (BLS), the overall slowdown in credit growth is mainly attributable to a significant change in credit standards. Banks have comprehensively tightened their supply policies for corporate loans since the second quarter of 2022 and a further – albeit slighter – tightening is also expected for the second quarter of 2023. A less favorable risk assessment of the general economic situation is the main reason why banks implement stricter guidelines.

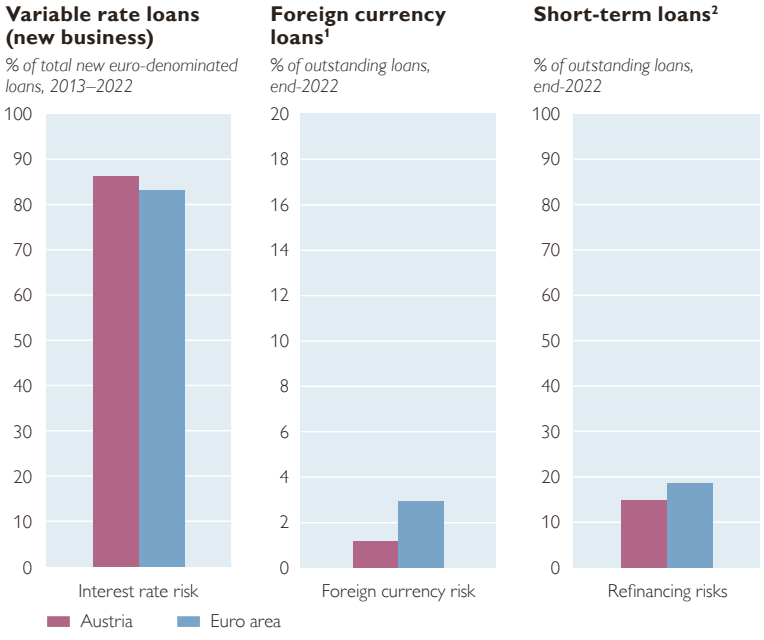
The increasing loan demand of Austrian companies came to a halt in the fourth quarter of 2022, according to the results of the BLS. While the demand for short-term loans continued to grow, the need for loans with terms of one year or more declined. Despite fading supply chain problems, financing needs for inventories and working capital are still high as companies aim to secure future deliveries. On the other hand, the uncertainty about the economic development dampens the demand for medium- and long-term loans. According to the surveyed banks, companies are more cautious about investments or are postponing them. This does not apply to investments in sustainable or renewable energies though, which are not affected by the decline in loan demand. For the second quarter of 2023, banks do not expect any further changes in overall loan demand.

Austrian companies' gross operating surplus grew more strongly than the sector's debt level. Overall debt in the corporate sector (i.e. loans and bonds) increased by EUR 11 billion in 2022. However, due to a marked increase in companies' profits, the aggregate corporate sector's debt-to-income ratio (DTI)[1] dropped by 10 percentage points within the last year. Standing at 307% at end-2022, the ratio remains below both the average value of 318% observed during the last ten years and the euro area average of 339% (end-2022). Hence, aggregate debt statistics so far do not point to any steady debt accumulation in the corporate sector. Still, credit risks are likely to increase for more vulnerable firms given high input costs, the tightening in financial conditions and the clouded economic environment.

Companies' debt-servicing costs are rising amid increasing interest rates. As the bulk of bank loans to companies are variable rate loans, indebted corporates are exposed to considerable interest rate risk. Over the last ten years, the average share of variable rate loans in total new (euro-denominated) loans amounted to 86%,

Chart 2.3

Austria versus the euro area: risk indicators for companies



Source: OeNB, ECB.

[1] *Loans that are not denominated in euro.*
[2] *Loans with maturities of up to 1 year.*

[1] *Defined as the consolidated gross debt of the corporate sector as a share of gross operating surplus.*

which is slightly higher than in the euro area (see chart 2.3, left-hand panel). Given this high share and the rise in interest rates, the ratio of companies' interest payment obligations for domestic bank loans to gross operating surplus surged by more than 2 percentage points and stood at 4.8% at end-2022. This is the highest level observed within the last ten years. Abstracting from interest rate risks, companies in Austria are less vulnerable compared to the euro area average when it comes to foreign currency and refinancing risks. As the share of short-term loans (with maturity periods of up to one year) make up only a small share of companies' outstanding loan volumes (15%), the related refinancing risks are rather moderate (see chart 2.3, right-hand panel). Also, the share of loans that are denominated in foreign currencies is very low (1.2%). Hence, possible losses from unfavorable exchange rate fluctuations are so far limited (see chart 2.3, middle panel).

Liquidity buffers (deposits and undrawn credit lines) are still above pre-pandemic levels. Companies' overnight deposits held by Austrian banks have been declining since the beginning of 2022 and have returned to levels seen before the COVID-19 pandemic. The observed reduction could reflect the gradual expiry of government support measures taken during the pandemic, which had significantly driven up firm deposits. However, in addition to overnight deposits, companies have a substantial amount of undrawn credit lines at their disposal. These credit lines also increased at the beginning of the COVID-19 pandemic but have remained constant so far.

For the first time, there were slightly more insolvencies compared to the period before the start of the pandemic. In the first quarter of 2023, the number of insolvencies stood at 619, compared to 535 in the first quarter of 2019. There were, however, no signs of an upward trend within the first quarter of 2023. The low number of insolvencies observed during the pandemic is a consequence of government support programs, which aimed to mitigate adverse developments in the corporate sector. As mitigating measures are now expiring, insolvencies are returning to pre-pandemic levels. Those industries that were strongly supported are still seeing significantly fewer insolvencies. This particularly applies to the restaurant industry. Overall, though, companies are challenged by the current economic environment and are likely to increasingly feel the effects of tighter financing conditions. Hence, over the medium term, while currently still low, the number of corporate insolvencies is likely to rise.

Austrian banks benefited from rising interest rates in 2022, while nonbanks were hit by the financial market downturn

High inflation affects the banking sector in multiple ways

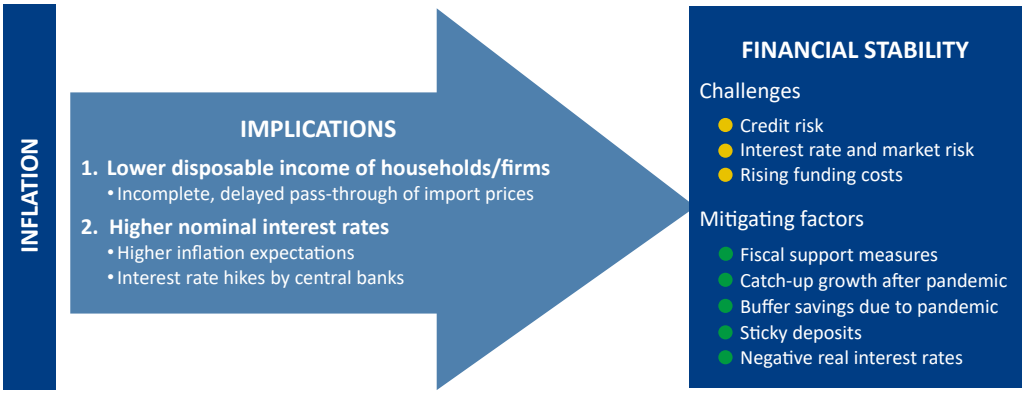
Inflation reduces disposable incomes and causes monetary policymakers to raise interest rates. The rapid increase in inflation, predominantly driven by higher import costs (e.g. for energy), was the main macrofinancial challenge in 2022. Annual consumer price inflation in Austria reached double-digit levels not seen since the 1970s,[1] which proved to be a challenging environment for many households and firms. As inflation expectations rose and central banks hiked rates to bring inflation back to target, borrowing costs for the real economy increased. Despite the higher nominal interest rates, real rates are deeply negative.

In general, rapidly rising interest rates are likely to increase both credit and interest rate risk for banks. Lower disposable real incomes and higher financing costs make loans more likely to become nonperforming, raising banks' credit risk costs. Banks' maturity mismatch and their holdings of long-term fixed income assets also expose them to interest rate and market risk. When interest rates rise, funding costs can adjust faster than the income from assets and the market value of long-term fixed income assets drops. Therefore, inflation and correspondingly rising interest rates can exert pressure on banks' profitability via higher risk costs and lowered margins, not only in the interest business, but also due to rising operating costs.

But so far credit risk has remained low at Austrian banks and higher interest rates have created a tailwind for profitability. As this report highlights, nonperforming loan ratios at Austrian banks decreased to a historic low by the end of 2022 and credit risk costs stayed moderate. Default risks for borrowers have

Figure 3.1

Inflation and its impact on financial stability



Source: OeNB.

[1] *A study in this Financial Stability Report takes a closer look at the effects the inflation shocks in the 1970s had on the Austrian banking sector.*

so far been mitigated by strong fiscal support measures, high saving buffers and the post-pandemic recovery as well as the fact that real interest rates remain negative. However, as these factors are easing off and given the relatively high share of variable rate loans in Austria, credit risks could materialize in the medium term. As documented in this issue of the Financial Stability Report, rising interest rates have in fact had a positive impact on Austrian banks' profitability. On the one hand, due to the high share of variable rate loans, banks were able to pass on most of the interest rate increases to their borrowers. On the other hand, despite their short maturity, customer deposits, especially from households, prove to be sticky and rather insensitive to changes in the interest rate. As a consequence, deposit repricing is slow. So far, the interest rate increases have markedly improved the Austrian banking sector's net interest margin.

Box 1

Austria still has numerous banks despite continuing consolidation efforts

The size of the Austrian banking sector relative to GDP is above the EU average, and Austrian banks account for almost one-fifth of all EU banks.[2] *In the aftermath of the 2008 global financial crisis, many banks entered a consolidation period and their balance sheets shrank. In 2008, Austrian banks' total assets amounted to EUR 1,176 billion and declined by almost one-fifth over the next eight years. However, this trend reversed in 2016 and balance sheets started to grow again, along with brisk credit growth. In 2021, Austrian banks' total assets already surpassed their 2008 level, and stood at EUR 1,199 billion at end-2022. With respect to GDP, the balance sheet of the Austrian banking sector is still larger than the EU average. In 2008, the ratio between total assets and GDP equaled 400% for Austria and 303% for the EU. Latest figures show a ratio of 268% for Austria compared to 227% for the EU (see chart 3.1, left-hand panel). The average Austrian credit institution holds assets worth around EUR 2.4 billion, while the assets per bank in the EU average out at EUR 13 billion, according to the latest available data. The median size of Austrian banks, however, is a mere EUR 400 million, as the sector is quite concentrated, with just five banks accounting for close to 40% of total assets. Since 2008, the number of banks in Austria has decreased substantially, namely by more than 40%, totaling 493 at end-2022, while the EU recorded a reduction in banks of 36% (by the third quarter of 2022; see chart 3.1, right-hand panel). Currently, Austrian banks still account for almost one-fifth of all banks in the EU, which reflects the high number of small cooperative banks. In terms of total assets, by contrast, the Austrian banking sector accounts for just 3% of the EU banking sector.*

From a euro area perspective, the total assets-to-GDP ratio stands at 250%, which also remains below Austria's ratio. *The number of euro area banks decreased over the past years and totaled 2,055 (in the third quarter of 2022), while the number of euro area branches decreased by 39% to 114,000 as at end-2021.*[2] *In comparison, the number of Austrian bank branches decreased by 22% from 2008 to end-2022, when it totaled 3,297 (see chart 3.2, left-hand panel). Nonetheless, a high density of banks remains; on average any Austrian citizen can reach a bank branch in less than two kilometers and in Vienna in less than one kilometer.*[3] *The average Austrian bank served 18,470 clients in 2022 compared to the euro area average of almost 161,000 (as at end-2021). Back in 2008, an Austrian bank served around 9,600 clients, compared to the euro area average of 115,200.*

Since 2008, Austrian and euro area banks reduced their staff by around 16% and 22%, respectively (see chart 3.2, right-hand panel).[4] *In 2022, 67,422 employees*

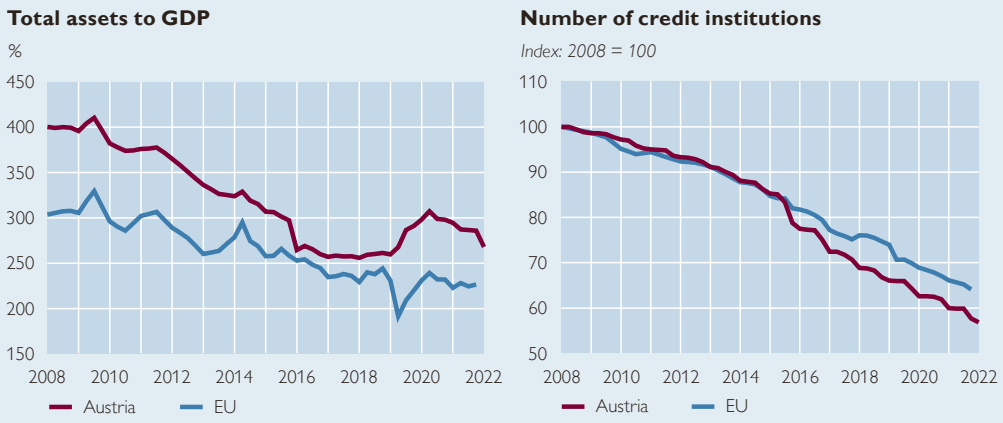
[2] *Here, Austria refers to Austrian banks and branch offices of foreign banks in Austria and these data are sourced from the OeNB. The EU/euro area (EA) refers to domestic banking groups and stand-alone banks, foreign (non-EU/EA)-controlled subsidiaries and foreign (non-EU/EA)-controlled branches and these data are sourced from the ECB.*

[3] *Interactive dashboard (German only): https://oenb.shinyapps.io/EntwicklungBankstellen*

[4] *All the information in this subparagraph refers to end-2022 for Austria and end-2021 for the euro area.*

Chart 3.1

Comparison of the Austrian and the EU banking sector



Source: ECB, Eurostat, OeNB.

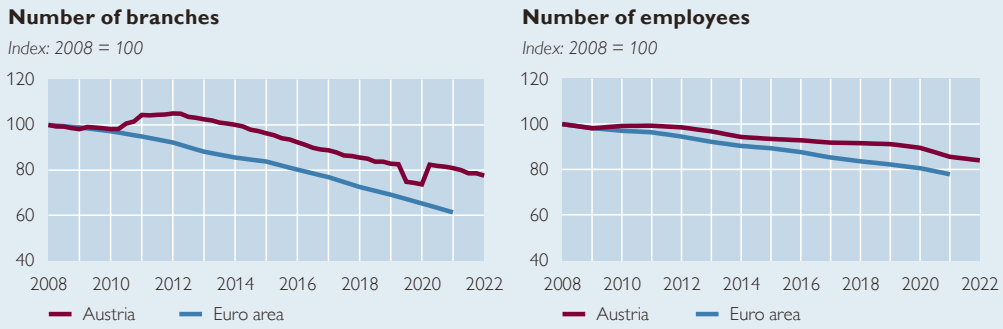
worked in the Austrian banking sector, accounting for less than 1% of the total population. On average, Austrian banks had 137 employees, while the average euro area bank had seven times more staff. This translates to one Austrian bank employee serving around 135 customers, while the euro area average is 197 customers.

***Cash remains the preferred means of payment in Austria, which is unique in the euro area.**[5] The dense network of both bank branches and automated teller machines (ATMs) ensures easy access to cash. Austria ranked among the few countries that increased the number of ATMs over the last five years. In contrast, ATMs decreased in the euro area by around 10%. According to the most recent data available, Austria had 981 ATMs per million inhabitants, while the euro area average was 713.[6]*

***Austrian banks' consolidation efforts are well in line with European developments.** The consolidation effort in the Austrian banking sector is thus well aligned with EU and euro area developments. Nevertheless, the sector remains large in terms of its balance sheet, the number of banks and the dense branch network.*

Chart 3.2

Comparison of the Austrian and the euro area banking sector



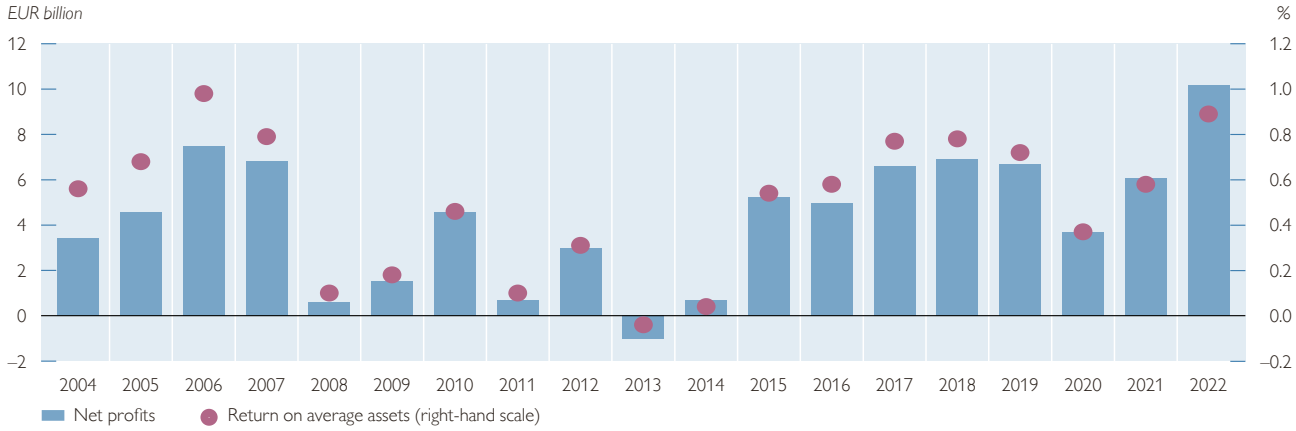
Source: ECB, OeNB.

[5] *ECB. 2022. Study on the payment attitudes of consumers in the euro area (SPACE) – 2022. https://www.ecb.europa.eu/stats/ecb_surveys/space/html/ecb.spacereport202212~783ffdf46e.en.html*

[6] *Interactive dashboard (German only) showing the distance to the nearest ATM in Austria: https://oenb.shinyapps.io/ErreichbarkeitGeldautomaten*

Chart 3.3

Austrian banking sector: profitability in a long-term perspective



Source: OeNB.

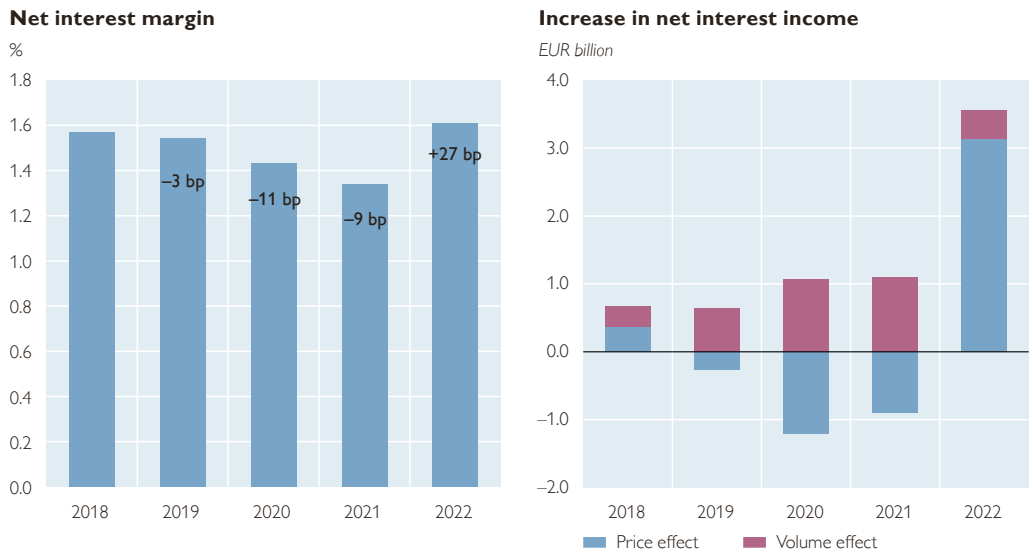
Austrian banks' profit is at a record high, with rising rates boosting net interest margins

The Austrian banking sector's profit in 2022 came in at a record high. Banks generated consolidated net profits – including profits of foreign subsidiaries – of EUR 10.2 billion, which was the first double-digit billion profit in history. This corresponds to a profitability level of 0.9% of average total assets, which was surpassed just once before, when a strong one-off effect in 2006 propelled proceeds from divestment.

Rising interest rates caused the consolidated net interest margin to increase. The cost-to-income ratio of the Austrian banking sector improved in 2022 thanks to strongly rising operating income and a moderate lift in operating expenses. Operating income expanded by almost one-quarter compared to the previous year. This was driven by a rise in net interest income that was propelled by continued lending, but especially the increase in the interest margin. After three consecutive years of falling interest margins, 2022 marked a turning point. Rising interest rates drove up the consolidated net interest margin by 27 basis points to 161 basis points (see chart 3.4, left-hand panel). As can be seen in chart 3.4 (right-hand panel), the price effect, which was negative in the three years from 2019 to 2021, pushed net interest income up and by far outpaced the effect of new lending (volume effect). Compared to other European banks, the margin of Austrian banks continued to be well above the average of 139 basis points thanks to higher margins at foreign subsidiaries. Fees and commissions income also grew markedly, while Austrian banks' trading income was negative for the second year in a row. The comparatively moderate lift in operating expenses was caused by elevated impairments on participations, whereas personnel expenses almost stagnated and other administrative expenses went up gradually. Consequently, the relation between costs and income improved significantly to 59%, which is tantamount to the lowest (i.e. best) result since 2010. Much of the improvement came from businesses in CESEE and especially Russia (see details below).

Chart 3.4

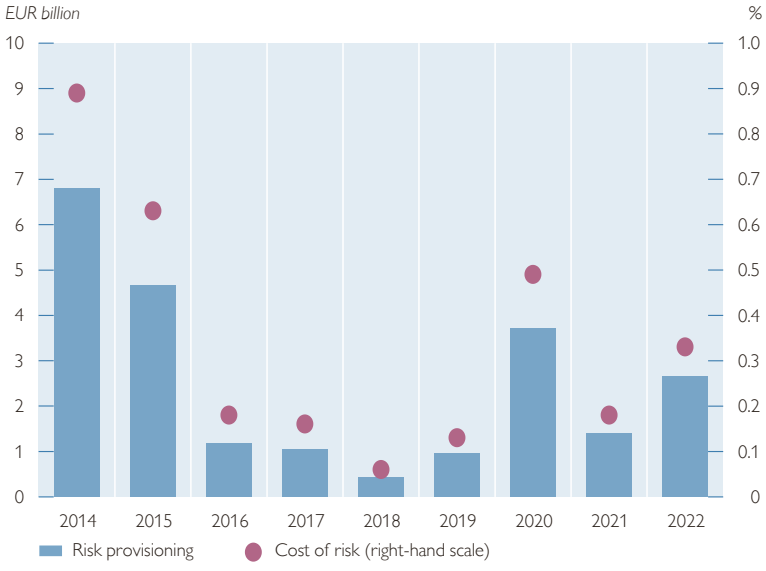
Austrian banking sector: results from interest business



Source: OeNB.

Chart 3.5

Austrian banking sector: annual risk provisioning



Source: OeNB.

The doubling of risk costs was almost offset by profits from investments in subsidiaries, joint ventures and other affiliates. Austrian banks' operating profit was EUR 12.9 billion in 2022, up more than 40% year over year. Although risk provisioning nearly doubled and pushed up the cost of risk to a still moderate 0.3%,[7] this increase was almost offset by extraordinary profits that resulted from investments in subsidiaries, joint ventures and other affiliates accounted for using the equity method. While no large-scale credit defaults materialized, credit risk is still looming. Amid quickly rising rates, the high share of loans with variable interest rates exposes borrowers to considerably higher interest expenses. Together with high inflation, this jeopardizes debtors' repayment capacity and might weigh on the cost of risk in the medium term.

While Austrian banks remained unaffected by the recent turmoil triggered by international bank failures, it remains to be seen whether the record high profits recorded by the Austrian banking sector in 2022 are sustainable going forward. Short-term macroeconomic developments are

[7] *Cost of risk is defined as annual loan loss provisioning to total gross loans.*

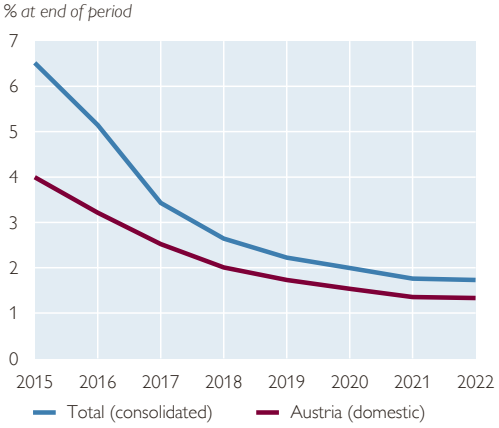
forecast to be weak. Besides, the increase in interest income was propelled by monetary policy effects that are going to fade, while, for instance, the results from activities in Russia will be difficult to repeat and to collect. On the positive side, international bank turbulences in the spring of 2023 did not impact the Austrian banking sector, as no losses were incurred in the course of the closure of US medium-sized banks or Credit Suisse's acquisition by UBS. Therefore, these bank failures posed no direct risk to Austrian financial stability. But the rapid increase in interest rates caused market participants to pay greater attention to banks' interest rate risks and to hidden losses arising from debt securities, measured at amortized cost (not marked to market). However, Austrian banks' exposure to debt securities is limited in an international comparison, which has to do with their retail-oriented business model. At end-2022, total debt securities amounted to about 12% of total assets, whereas total cash stood at over 13% of total assets. In addition, valuation risk is mitigated by banks' hedging measures. Importantly, Austrian banks command a solid liquidity position, and confidence in the Austrian banking sector has been high throughout the turbulences in the United States and Switzerland.

Credit quality still unaffected by inflation's impact, but provisions are on the rise

Credit quality at Austrian banks remained good. At end-2022, the share of NPLs in total loans remained at its historic low level of 1.7%. At 1.3%, the equivalent figure for domestic business was even lower. This development was reflected in all customer segments. Furthermore, forward-looking indicators do not point to a sea change, as for instance the proportion of stage 2 loans decreased from 18.2% to 17.8% in the course of 2022.[8] Nevertheless, this share is still elevated compared to other European countries, since some Austrian banks, during the pandemic in 2020, had classified entire portfolios in stage 2 and only slightly

Chart 3.6

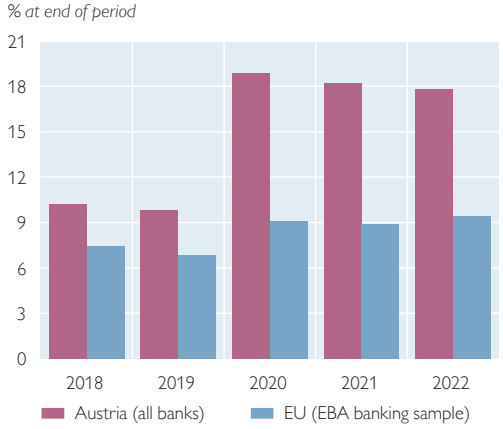
Austrian banking sector: nonperforming loan ratios



Source: OeNB.

Chart 3.7

Austrian versus EU banking sector: share of IFRS stage 2 loans in total loans



Source: OeNB, EBA.

[8] *Loans are classified in stage 2 if their "credit risk has increased significantly since initial recognition and is not considered low". https://www.bis.org/fsi/fsisummaries/ifrs9.pdf*

reduced their share after related risks subsided or more single customer-based assessments had been conducted.

NPL coverage declined, although the volume of general risk provisions rose. Stepped-up provisioning enlarged Austrian banks' general risk provisions in 2022. Nevertheless, the coverage of NPLs with specific provisions declined slightly to 46%. Despite this decline, NPL coverage at Austrian banks remained above average in a European context, where the weighted average was 43%.[9]

Subsidiaries in CESEE recorded rising profits, contribution from Russia exceptionally high

Austrian banking subsidiaries in CESEE predominantly operate in EU member states. With four-fifths of their total assets and more than half of their profits originating from inside the EU, Austrian banks' CESEE subsidiaries predominantly operate within the common European framework and under a harmonized rule book. But in 2022, amid Russia's war against Ukraine and geo-political tensions, the spotlight was directed on business activities in Russia. Russia accounts for less than one-tenth of the Austrian banking sector's total assets in CESEE, whereas profits coming from this business were considerable, making up close to 40% of all profits from the region.

Austrian banking subsidiaries in CESEE earned more than EUR 5 billion in 2022, substantially up from EUR 3 billion in 2021. Net interest income, which made up 60% of operating income, rose by almost one-third, due to a strong pickup in the net interest margin (2.8% in 2022, back to pre-pandemic levels). This substantial increase was strongly linked to local monetary policy tightening, translated into a price boost for banks and changed their net interest income dynamics (see chart 3.8, left-hand panel). Fees and commissions were up even more strongly, by two-thirds year on year. Overall, operating income rose by nearly half to around EUR 13 billion; and the operating profit surged to EUR 7.7 billion (as the cost-to-income ratio fell to 40% in 2022). This very strong result more than compensated for the doubling in risk provisioning and led to a profit of EUR 5.2 billion.

The 2022 surge in profit generally rests on a broad geographical base but was also caused by a large contribution from banking operations in Russia. Excluding the Russian business, Austrian banks' CESEE subsidiaries delivered higher operating profits and meaningfully improved profits, with each rising by more than one-quarter. These trends highlight the importance of rising net interest margins during a year when total assets stayed flat, while operating and risk costs were under control. The profitability of operations in Russia, however, was exceptionally high, as operating income more than trebled, while the operating result and overall profit more than quadrupled (in euro terms).[10] The right-hand panel of chart 3.8 retraces year-on-year trends in the CESEE subsidiaries' main profit indicators and the contribution from Russian activities.

As economic developments in Russia and the ruble's exchange rate are difficult to predict, exceptionally high profits from CESEE may prove

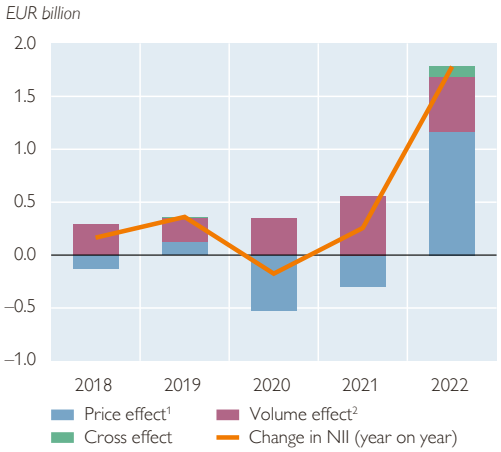
[9] *Source: EBA Risk Dashboard (Q4 2022).*

[10] *Source: Raiffeisen Bank International's Annual Report 2022 (page 81). https://www.rbinternational.com/resources/RBI-Investor/rbi-investor/2023/fy-22/2023-02-23%202022%20Annual%20Report%20RBI.pdf*

Chart 3.8

Austrian banking subsidiaries in CESEE

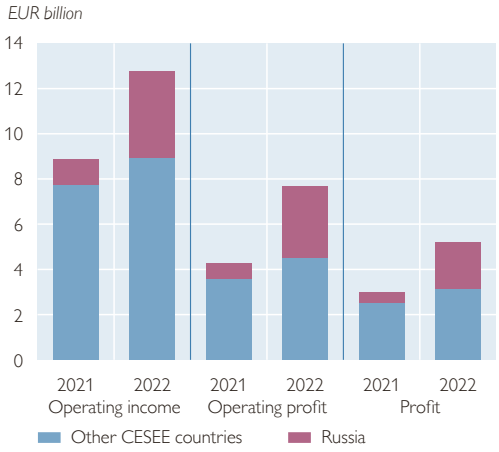
Drivers of net interest income (NII)



Source: OeNB.

[1] Due to changing net interest margins.
[2] Due to changing average total assets.

Main profit indicators and the contribution from Russia

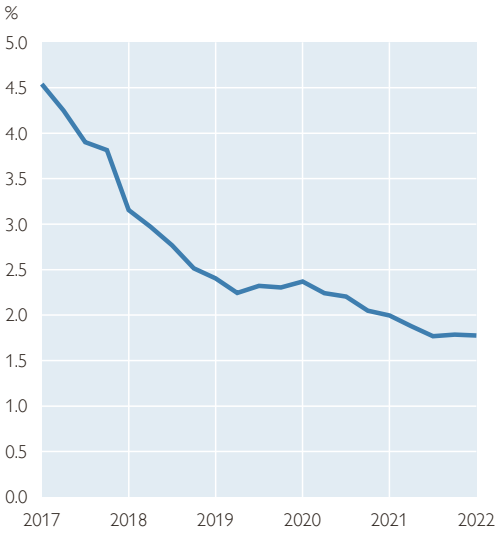


Source: Raiffeisen Bank International (data for Russia), OeNB (data for other CESEE countries).

not to be sustainable. The war in Ukraine and its consequences as well as still strong inflationary pressures in CESEE are substantial challenges, probably for years to come, especially when the benign effects of higher interest rates fade, banks' net interest margins peak, credit risk costs start rising and/or the business activities in Russia cease to be an important profit driver. Despite such potential headwinds, Austrian banks should benefit from their well-diversified CESEE exposure.

Chart 3.9

Austrian banking subsidiaries in CESEE: nonperforming loan ratio



Source: OeNB.

Austrian banking subsidiaries in CESEE recorded low credit risks and a high risk-bearing capacity in 2022. Despite the war in Ukraine and the initial impact of high inflation, realized credit risk was low at Austrian banking subsidiaries in CESEE. At end-2022, the NPL ratio stood at a historically low 1.8% (see chart 3.9), and above 80% of loans were classified in stage 1. Austrian banking subsidiaries' risk-bearing capacity was also strong on aggregate, resting on robust local profitability in 2022 (as described above), an adequate NPL coverage ratio above 64% and strong capitalization, with a common equity tier 1 (CET1) ratio above 16% at the end of 2022. Further-

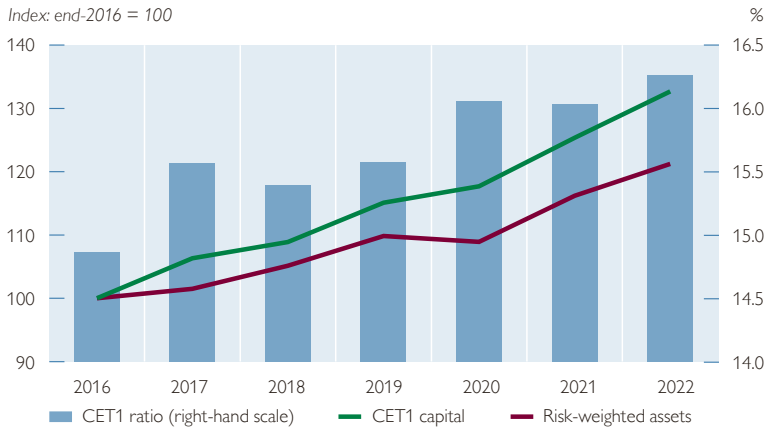
more, Austrian banks' CESEE subsidiaries are predominantly self-funded through local deposits from nonbanks, as highlighted by a loan-to-deposit ratio of 72% at end-2022, which is also attributable to the timely implementation of a macroprudential measure to this end in 2012.[11]

Austrian banking sector reaches highest capitalization on record, but large banks trail behind

EU banks' capitalization declined slightly in 2022, while the Austrian banking sector reached its highest capitalization level. The transitional common equity tier 1 (CET1) ratio of the EBA's European bank sample, which exhibits a bias for larger banks, fell slightly year on year to 15.5%, with large Austrian banks just below the average.[12] At the same time, the entire Austrian banking sector increased its CET1 capital to more than EUR 87 billion, which translated into its highest CET1 ratio on record (16.3%). As chart 3.10 depicts, the underlying positive trend over the last years reflects growth in banks' CET1 capital outstripping the rise of risk-weighted assets (RWAs). This development was not gradual, however, featuring also major jumps. During the pandemic, for example, profits were retained due to an ECB recommendation not to pay dividends or buy back shares. Given that this restrictive stance has lapsed and profit distributions are gaining traction again, competent authorities are closely supervising banks' payout plans.

Chart 3.10

Austrian banking sector: CET1 ratio

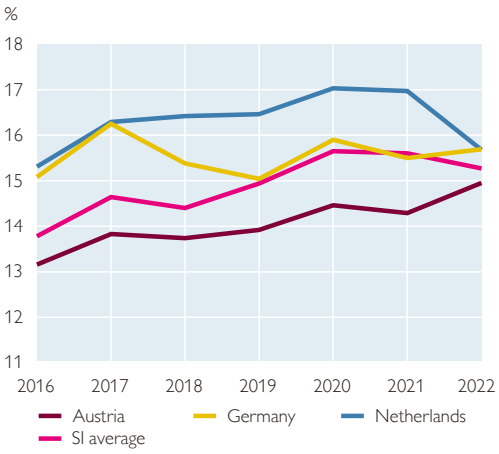


Source: OeNB.

Note: All data points are year-end values.

Chart 3.11

European significant institutions: transitional CET1 ratio



Source: ECB.

Note: SI = significant institutions.

Despite improvements in their capitalization, large banks trail behind their smaller competitors. At an average CET1 ratio of below 15%, large European banks are, according to EBA data, significantly less well capitalized than medium-sized (above 17%) or small banks (above 20%). This occurs even though their systemic importance is typically higher and supervisory authorities addressed

[11] *For further details, refer to https://www.oenb.at/en/financial-market/financial-stability/sustainability-of-large-austrian-banks-business-models.html*

[12] *Source: EBA Risk Dashboard (Q4 2022).*

too big to fail issues by implementing additional capital buffers. Regarding Austria's significant institutions (SIs), two trends are noteworthy. First, chart 3.11 shows that the capitalization of Austrian (domestically owned) SIs is still slightly below the SI average, including those from Germany and the Netherlands, which can partly be explained by differing business models. On a positive note, this gap narrowed substantially in 2022, as the SI average declined slightly, while Austrian SIs improved their capitalization. Also, Austrian banks display a higher leverage ratio than the SI average. Second, Austrian (including foreign-owned) SIs display lower capital ratios than their smaller local competitors, despite their overall supervisory capital demand being higher. The reason is that SIs operate with smaller capital surpluses than smaller banks. Consequently, the CET1 ratio of Austrian SIs stood at 15.2%, while less significant institutions were at 18.2% (as at end-2022). This underlines the importance of the OeNB's long-standing recommendation that banks strengthen their capital base in a sustainable and forward-looking manner, with a focus on the largest, systemically important banks. Gradually phasing in increased structural buffer requirements until 2024 is an important step in this direction, not least because a strong capital base is crucial in times of high inflation, sharply rising interest rates, geopolitical tensions and a clouded economic outlook.

Austrian banks are well equipped to weather central banks' reduced liquidity provision, but they must remain vigilant

Recent international bank failures have brought funding liquidity risks back to market participants' minds and illustrated how an unsustainable business model can morph into a liquidity event that quickly causes a bank's failure. It is noteworthy, however, that these cases occurred outside the EU's regulatory framework and that liquidity risk regulations are tighter in the EU, especially for medium-sized and smaller banks.

Austrian banks' liquidity ratios retreated somewhat, but they are comfortably above minimum requirements. The banks' endowment with collateral, which had allowed them to make extensive use of the Eurosystem's targeted longer-term refinancing operations (TLTROs), also shielded them from liquidity stress when central banks started withdrawing liquidity in response to rising inflation. Their liquidity coverage ratios (LCRs) and net stable funding ratios (NSFRs) have retreated somewhat, however, as a contraction of central bank reserves reduced highly liquid assets and cutting the TLTRO's residual terms reduced stable funding. Still, with a median LCR of 146% and a median NSFR of 123% as at end-2022, Austrian banks have comfortably remained above the minimum requirements of 100%, and TLTRO repayments free up collateral. Austrian banks thus correspond to or slightly outperform the European average when it comes to liquidity ratios, while central bank reserves remain a major part of liquid assets.

Austrian banks repaid TLTRO funding early, which was in line with a European trend. Amid negative interest rates and potential repercussions for the banking system, generous liquidity provision by the Eurosystem in the wake of the pandemic allowed Austrian banks to generate risk-free profits of about EUR 1 billion from 2020 to 2022. Following adaptations in the TLTRO's conditions at end-2022, these profits are no longer replicable, and Austrian banks markedly reduced their liabilities against the Eurosystem in response. At slightly below

EUR 50 billion at end-February 2023, their funding from the Eurosystem still remains markedly above pre-pandemic levels. A further drawdown is due in June 2023, when the bulk of TLTRO III operations expires. At more than EUR 110 billion, Austrian banks' excess liquidity reserves at the Eurosystem remain high, which provides a solid safety margin come June.

Austrian banks have so far managed the transition to higher interest rates and lower systemic liquidity well. This is exemplified by a record issuance of Austrian bank bonds in January 2023, both in terms of gross and net issuance. Macroprudential measures have also helped safeguard Austrian banks' credit quality and raise their risk-bearing capacity. It is crucial for banks to comply with these measures and follow the OeNB's recommendations to secure a sound funding base at competitive costs. The latter is a vital prerequisite for banks' success, as driven home by recent international bank failures.

Box 2

Macroprudential policy, bank ratings and banks' funding costs are closely intertwined

Standard and Poor's (S&P) confirmed the very positive BICRA rating of the Austrian banking industry in February 2023.[13] *According to the recent update of S&P's Banking Industry Country Risk Assessment (BICRA), the Austrian banking sector continues to be among the most stable banking sectors worldwide, expressed in rating class 2. Beside banks' resilience regarding the pandemic and secondary effects of the war in Ukraine, the agency based its assessment inter alia on the recent increase in the structural macroprudential buffers and the introduction of binding borrower-based measures. The buffer increases strengthened the resilience of the Austrian banking industry to financial or economic shocks. S&P also argued that, with the implementation of borrower-based measures, Austria had finally caught up to international best practices in lending standards. In a challenging environment, prudent lending practices help avoid a strong deterioration in credit quality. Prudent macroprudential supervision helped improve the international perception of the Austrian banking system, as confirmed by Cehajic and Kosak in 2021 for a sample of 43 European countries from 2000 to 2017.*[14] *They found that the activation of macroprudential instruments is significantly associated with lower costs of bank funding. In addition to macroprudential measures, improvements in bank profitability also affected S&P's rating decision. However, caution is warranted. The capitalization of the Austrian banking sector is still significantly lower than that of other banking systems in the BICRA rating class 2.*

Better banking industry and country ratings lead to better individual bank ratings.[15] *In case of S&P, the BICRA is "a relative ranking of creditworthiness across national banking markets" and provides the basis for a bank's individual rating.*[16] *It combines an assess-*

[13] *The BICRA rating groups banking industries in ten groups with group 1 being the countries with the least economic and industry risk (no country in BICRA group 1). Austria's banking system is classified in BICRA group 2, together with countries like Belgium, Finland or Sweden (BICRA group 3 contains countries such as Germany, France, or the United States). See S&P. 2023. Banking Industry Country Risk Assessment Update. January, and S&P. 2023. Various Rating Actions Taken on Austrian Banks on Stabilization of Operating Performance. February.*

[14] *Cehajic, A. and M. Kosak. 2021. Macroprudential measures and developments in bank funding costs. In: International Review of Financial Analysis 78.*

[15] *The important role of regulatory quality for banks' funding cost is shown in a worldwide study of 118 banks between 2004 and 2011 (Benbouzid, N., S. Mallick and R. Sousa. 2017. An international forensic perspective of the determinants of banks' CDS spreads. In: Journal of Financial Stability 33. 60–70.) and in Babihuga, R. and M. Spaltro. 2014. Bank funding costs for international banks. IMF Working Paper 14/71.*

[16] *S&P. 2022. How we rate financial institutions. February.*

ment of economic risk, including economic resilience, economic imbalances and credit risk in the economy, as well as industry risk which accounts for the institutional framework, competitive dynamics and system-wide funding.[17] The stand-alone credit rating of the individual bank is deduced from BICRA by considering a bank's specific strengths and weaknesses. Emphasis is put on its business position in the market, its capital and earnings, its risk position and funding and liquidity situation. In the case of the recent evaluation of Austria's BICRA rating, the confirmation of the system-wide rating resulted in improved outlooks and partly rating upgrades of many individual ratings of Austrian banks.

Better ratings can reduce banks' debt funding costs. *Besides several other bank and country-related factors, better ratings can reduce banks' debt funding costs.[18] The main channel of interaction is the perceived credit risk of the debt-issuing bank. Credit default swap (CDS) spreads, often used to proxy the cost of risk for investors and thus an important part of funding cost, are rating sensitive. Drago et al. (2017) find that a one-notch higher bank-specific credit risk rating reduces CDS spreads on average by around 80 basis points in a sample of 63 European and US banks from 2007 to 2016.[19] Schmitz et al. (2020) find a lower effect of between 30 basis points and 40 basis points for a sample of 33 banks from the US, Austria, Canada, the Netherlands and Scandinavia from 2004 to 2013.[20] The differences between funding costs across rating classes are larger under stress than in normal times. The literature also finds that capitalization directly affects funding costs.[21] Hence, prudent macroprudential buffers have a twofold positive effect on debt funding costs, directly via better capitalization and indirectly via improved ratings. Aymanns et al. (2016) find that a banks' capital position is particularly important for funding costs under stress. Based on evidence for US banks from 1993 to 2013, the authors show that wholesale investors are particularly sensitive to banks' solvency in crisis times. Higher macroprudential capital buffers thus pay off and also stabilize the flow of credit to the real economy under stress.*

Higher lending rates made housing loans less affordable, macroprudential measures address systemic risks from unsustainable lending standards

Dynamics in the residential real estate market in Austria have been slowing since mid-2022, while demand for residential real estate loans is fading. Real residential property price increases had been particularly high in the period from 2020 to mid-2022, when real prices peaked. Their recent decline coincides with a slowing demand of households for housing loans amid higher bank lending rates and the uncertain economic situation. In March 2023, the growth rate for housing loans fell to 2.6% compared to the previous year.

Several aspects have contributed to currently low default rates in residential real estate (RRE) lending: Household indebtedness is low in Austria compared to other euro area countries and Austrian households mainly

[17] *The BICRA rating does not take into account banks' foreign operations. They are considered in the composition of bank's individual ratings by weighting the BICRA ratings of those countries where a bank is most active in.*

[18] *E.g. Hull, J., M. Predescu and A. White. 2004. The relationship between credit default swap spreads, bond yields, and credit rating announcements. In: Journal of Banking and Finance 28. 2789–2811.*

[19] *Drago, D., C. Tommaso and J. Thornton. 2017. What determines bank CDS spreads? Evidence from European and US banks. In: Finance Research Letter 22. 140–145.*

[20] *Schmitz, S. W., M. Sigmund and L. Valderrama. 2020. Bank Solvency and Funding Cost: New Data and New Results. In: Jobst, A. and L. L. Ong (eds.). The IMF Approach to stress testing II. Washington D. C. 2020. 155–181.*

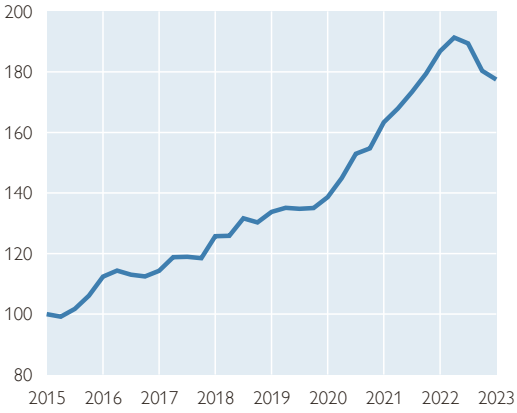
[21] *See e.g. Babihuga, R. and M. Spaltro. 2014. Bank funding cost for international banks. IMF Working Paper 14/71; or Aymanns, C. et al. 2016. Bank solvency and funding cost. IMF Working Paper 16/64.*

Chart 3.12

Austria: residential real estate market

Real residential property prices

Index: Q1 15 = 100

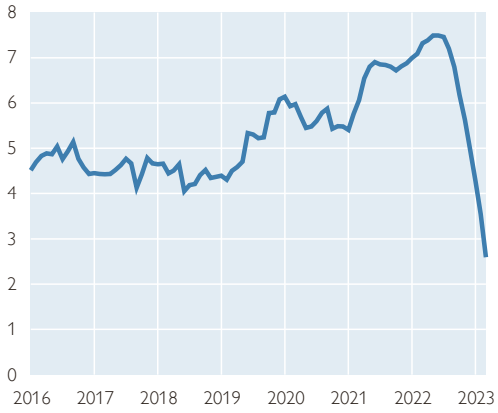


Source: OeNB, TU Wien.

Note: Prices are HICP adjusted, quarterly data.

Bank housing loans to households

Annual change in %



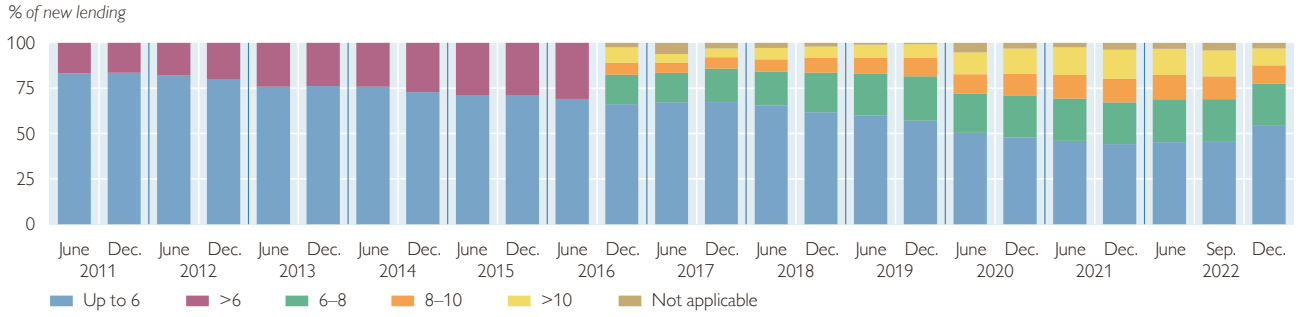
Source: OeNB.

take out housing loans to purchase their main residence. Further, Austria has a well-developed rental market with a high share of nonprofit providers that offers an alternative for households that are not able to purchase a house or apartment. Over the past years, Austrian households increasingly took out loans with long interest rate fixation periods to lock in low interest rates, while lending at variable rates decreased markedly. However, this trend reversed in 2022, and as of end-2022, half of the new RRE lending volume was granted at a variable rate, which makes borrowers vulnerable to increased debt service payments when interest rates rise.

Systemic risks from residential real estate lending have been continuously rising in recent years. Over the past ten years, RRE prices doubled in Austria, which reduced the affordability of housing. When real estate prices rise considerably more strongly than incomes and wealth, many households incur higher debt relative to their income and wealth to buy property. As a result, the lending standards of the flow of new loans deteriorate. For instance, in the first half of 2011, the loan amount was smaller than six times borrowers' annual net household incomes for around 80% of the volume of new lending for RRE (see chart 3.13). By 2022, this share had dropped below 50%, which means that the predominant part of new real estate loans was taken out by households incurring debt that exceeds six times their net income to buy property. For a non-negligible volume of new loans, debt even exceeded ten times households' annual net income. Making compliance with borrower-based measures mandatory in August 2022 stopped this trend.

Chart 3.13

RRE lending in Austria: debt-to-income (DTI) ratio, 2011–2022



Source: OeNB.

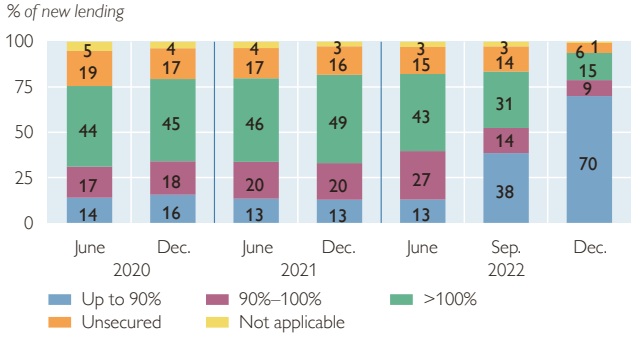
From the introduction of the reporting of the loan-to-value (LTV) ratio[22] in the first half of 2020 to the first half of 2022, the share of new loans with an unsustainable LTV ratio above 90% remained very high at 86% to 87% (see chart 3.14, left-hand panel). After borrower-based measures had become mandatory, it decreased markedly to 30% in the second half of 2022. The share of new lending with a debt service-to-income (DSTI) ratio above 40% also decreased from 18% in the first half of 2020 to 13% in the second half of 2022 (see chart 3.14, right-hand panel).

Over time, low standards for new lending can lead to a deterioration in the overall quality of the stock of outstanding loans, thereby increasing systemic risk, particularly when the cost of living, interest rates or unemployment rise. These developments made the market vulnerable for credit-driven exuberance and price corrections. Indeed, in the fourth quarter of 2022, the OeNB RRE price index declined for the first time in many years. Furthermore, interest rates started to rise rapidly in 2022, as the average interest rate on new housing loans more than tripled from 1.25% in March 2022 to 3.8% in March 2023 (new loans excluding renegotiations). As a consequence, new lending volumes shrank in Austria in the

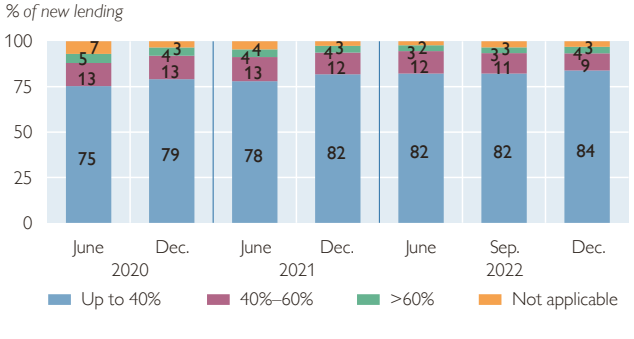
Chart 3.14

RRE lending in Austria: LTV and DSTI ratios

Loan-to-value (LTV) ratio



Debt service-to-income (DSTI) ratio



Source: OeNB (as at December 31, 2022).

[22] *The loan-to-value ratio measures the total level of debt in relation to mortgage collateral or other financial assets securing the repayment of debt.*

second half of 2022, as lending to households for house purchases – that had grown strongly over the past years – had slowed down to 5% by end-2022 year on year. The role that binding lending standards have to play for preserving the quality of the RRE lending portfolio is highlighted by the fact that lending standards improved following the activation of borrower-based macroprudential instruments in 2022. Add to that the observation that a relatively high share of new mortgages was offered at elevated debt service-to-income and loan-to-value ratios[23] before these measures became binding (see charts 3.13 and 3.14).

In times of crisis, systemic risks in the RRE segment may prove critical to Austria's financial stability and should therefore be addressed. Housing loans are an important credit segment and source of revenue for banks. Further, real estate became increasingly important as a form of collateral for bank loans in all segments. Given that the construction and real estate industries are economically important, the risk of spillovers to the real economy increases in the event of a crisis. Borrower-based instruments are macroprudential tools that are commonly used to address systemic risks from RRE financing in a timely manner, i.e. when identified vulnerabilities are increasing. They directly target the composition of new lending according to commonly used indicators, such as LTV, DSTI or DTI ratios, and, hence, prevent a deterioration of lending standards for new lending and, thus, safeguard the credit quality of banks' loan portfolios (stock of loans). In times of crisis, the measures reduce banking sector losses from real estate exposures and the related risks to financial stability and the real economy. In addition, they protect borrowers from the consequences of taking on excessive debt.

Since August 2022, Austrian banks must adhere to legally binding borrower-based measures when granting RRE loans.[24] Austria's Financial Market Authority (FMA) issued a regulation that includes upper limits for loan-to-value ratios (LTV of 90%), debt service-to-income ratios (DSTI of 40%) and loan maturities (below 35 years), subject to comparatively generous exemptions that give credit institutions adequate operational flexibility. This regulation implements the Financial Market Stability Board's guidance on sustainable lending standards from 2018[25] and applies to new mortgage lending above EUR 50,000. Furthermore, the FMSB adjusted its guidance on sustainable lending standards in its 35th meeting in February 2022[26] to include an upper limit for the DSTI ratio of 30% for loans with an interest rate fixation period below half of a loan's maturity. Following the FMSB's recommendation, the FMA relaxed the borrower-based measures by excluding bridge loans and by increasing the de minimis threshold for couples to EUR 100,000. This amendment, which became effective in April 2023, allows for even greater flexibility as already provided for by the initial regulation.

Commercial real estate (CRE) lending warrants increased scrutiny. In Austria, the bulk of CRE debt financing is provided by banks. CRE mortgage loans granted by Austrian banking groups to nonfinancial corporations made up

[23] *Loan-to-value ratio according to Article 23h (2)1 Austrian Banking Act ("Beleihungsquote").*

[24] *The Austrian Financial Market Authority (FMA) issued a regulation on borrower-based measures that took effect on August 1, 2022, and was adapted on April 1, 2023 (regulation for sustainable lending standards for residential real estate financing; in German: "Kreditinstitute-Immobilienfinanzierungsmaßnahmen-Verordnung – KIM-V").*

[25] *Press release of the 17th meeting of the Financial Market Stability Board.*

[26] *Press release of the 35th meeting of the Financial Market Stability Board.*

EUR 135 billion at the end of 2022. At 13% of total assets, the share of CRE mortgage loans in business activities stands out in an EU comparison. Having lagged behind over the past years, the annual growth rates of CRE loans had surpassed those of RRE loans by end-2022: CRE mortgage loans by banking groups grew by 7.6% (RRE mortgage loans by 6.1%), CRE loans to domestic borrowers by 8.4% (RRE loans to domestic borrowers by 5%). One-third of CRE loans provide the funding for acquiring or developing residential premises. The extraordinary profits experienced by this sector – that were fueled by very low debt service costs both for real estate corporates themselves and their clients – are currently normalizing. CRE borrowers structurally exhibit lower ratings indicating lower loan quality, but there were no critical rating migrations until end-2022. Headwinds to borrowers' ratings and associated property valuations are arising from higher interest rate levels as well as structural shifts, such as the increasing prominence of environmental criteria or changes in demand due to online shopping and remote work. Lenders are therefore called upon to ensure appropriate valuations and provide for adequate risk provisioning.

Structural capital buffers in Austria are gradually being increased, while the countercyclical capital buffer (CCyB) remains at zero

Austrian macroprudential supervision took preventive policy action in 2022 to foster the resilience of Austrian banks against systemic financial shocks. Capital buffers such as the other systemically important institutions buffer (O-SII buffer), the systemic risk buffer (SyRB) and the CCyB are part of the macroprudential toolkit. Banks subject to those buffers must hold more capital proportional to risks on their balance sheet. As a result, they become more resilient to systemic risks in the financial system and contagion effects are mitigated. Macroprudential capital buffers also provide incentives for banks to reduce their risk-taking, which improves the systemic risk structure of the banking sector. In the first half of 2023, the turmoil in financial markets, induced by the collapse of Silicon Valley Bank, has once more shown that ex post crisis management is more costly than ex ante capital buffers and that preference should be given to preventive supervisory measures.

In 2023, higher O-SII buffer and SyRB requirements entered into force for individual Austrian banks. The O-SII buffer and SyRB apply to banks of systemic importance for Austria's financial system and to those banks that are particularly exposed to systemic structural risks in the Austrian financial sector.[27] Both structural buffers were first introduced in 2016. They are evaluated regularly by considering the respective systemic risk environment as well as the interaction with other supervisory measures.[28] Since end-2020, the O-SII buffer and SyRB have been additive, as stipulated in the Capital Requirements Directive V (CRD V). But at that time, given the high economic uncertainty surrounding the coronavirus pandemic, the Austrian Financial Market Stability Board (FMSB) recommended that the effective buffer requirements were not to rise before end-2022 solely

[27] *A detailed list of banks subject to the O-SII buffer and the SyRB and the respective buffer sizes can be found on the website of the FMSB (FMSB – Risk warnings and recommendations 2022).*

[28] *More information on the OeNB's methodology applied in its systemic risk analysis and macroprudential buffer calibration can be found on its website (Maßnahmen und Methoden – Oesterreichische Nationalbank (OeNB)).*

because of a change in the legal framework. At end-2022, the O-SII buffer and SyRB were thus re-evaluated. While both buffers address different systemic structural risks, these risks are interdependent. For example, the O-SII buffer addresses the too big to fail issue of individual banks. As such, it builds up resilience in banks. In turn, the heightened resilience is considered in the assessment of systemic structural risks, which are addressed by the SyRB. A thorough analysis corrects for any overlap in the calibration of both buffers. The FMSB recommended a phase-in of the increased buffer requirements over the years 2023 and 2024, inter alia given uncertainties in connection with Russia's war against Ukraine and high inflation. The structural buffers therefore have been raised by no more than 25 basis points as of the beginning of 2023, and the overall increase per bank will not exceed 50 basis points until January 2024.

The credit-to-GDP gap of Austrian banks narrowed in 2022, but cyclical risks remain high. In the last quarter of 2022, the credit-to-GDP gap in Austria dropped to –9.9 percentage points on the back of high GDP growth and declining credit growth. The gap is therefore well below the critical threshold of +2 percentage points. However, other indicators continue to signal elevated cyclical risks in the financial system. These indicators relate to bank balance sheets, the real estate indicators and growth of loans to corporates. New housing loans have declined notably with the increase of mortgage interest rates. As GDP growth has proven increasingly volatile in the last few years, the standardized CCyB indicator has become less reliable as an indicator of the buildup of cyclical risk. All in all, the FMSB advised the FMA in April 2023 to maintain the CCyB at its current rate of 0% of risk-weighted assets for the time being, despite the risks signaled by certain indicators.

New oversight legislation reflects developments in electronic payments

Regulation (EU) 2022/858 on a pilot regime for market infrastructures based on distributed ledger technology (DLT) is currently being implemented into Austrian law. This regulation is part of the digital finance package of the European Commission. The OeNB (in its oversight function) will be involved in the permission and supervision regarding the settlement aspects of the newly regulated DLT financial market infrastructures.

The framework for the oversight of electronic payment instruments, schemes and arrangements (PISA) became applicable as of November 2022. PISA updates and consolidates the existing oversight standards for electronic payment instruments.[29] The overseen entities responsible for payment instruments are either schemes (e.g. card schemes) or arrangements (wallets). While the list of currently identified schemes has already been published by the ECB, further fine-tuning of the definition and identification of arrangements is still ongoing and due to be finalized by summer 2023. Arrangements shall also cover crypto asset-related services and stablecoins. Newly identified entities should adhere to the framework no later than one year after being informed by the oversight authority. Due to the exemption of entities given their small size and market penetration, no Austrian schemes or arrangements currently fall under the PISA oversight.

[29] *https://www.ecb.europa.eu/paym/pol/activ/instr/html/index.en.html*

Austrian nonbank financial intermediaries were hit by financial market downturn in 2022

The performance of Austrian insurers, pension and investment funds was noticeably affected by the difficult macroeconomic environment in 2022. The sharp rise of inflation and volatile capital markets noticeably affected the value of financial assets, whereas the premium volume of Austrian insurers increased slightly. Even though the tough investment environment took its toll, the financial conditions of Austrian insurers, pension and investment funds remained solid.

Austrian insurers' profits from ordinary business halved in 2022, while investment profits fell by almost one-third. The Austrian insurance sector's total premium volume slightly increased to EUR 21 billion in 2022, which may be broken down into EUR 13 billion revenues from property and casualty insurance policies, EUR 5 billion from life insurance policies and EUR 3 billion from health insurance policies. The underwriting result stagnated, while the financial result declined by one-third. Overall, the result from ordinary business activities halved to EUR 1 billion. Solvency remained good, with a median solvency capital requirement ratio of 244% at end-2022.

The market downturn in 2022 affected the Austrian insurance sector as the market value of its financial asset holdings decreased. Total assets of the Austrian insurance sector declined moderately in 2022 to EUR 128 billion. A breakdown shows that nearly one-third were debt securities, one-quarter were investment funds, while shares and other equity amounted to one-fifth, and loans to less than 6%.[30] The recent increase of risk-free rates has benefited the insurance sector in terms of its solvability. However, the decline in stock markets led to falling own funds and own funds requirements.

The exposure of Austrian insurance companies to the banking sector and sovereigns is on the decline but could still be a channel of risk transmission. The sector's total exposure to the banking sector via debt securities and loans continued its decline in 2022. At end-2022, it amounted to just under 10% of total assets (2016: 16%); to domestic banks it declined from 7% to 3%. The sovereign exposure came close to 15% of total assets and remained unchanged against end-2016. The home country bias decreased to 2% of total assets.

Assets under management of Austrian investment funds decreased in 2022. Large price corrections due to capital market turbulences reduced the funds' assets by 13% or EUR 30 billion year on year, with assets under management amounting to EUR 200 billion at end-2022. Net outflows accounted for only EUR 0.5 billion. At the end of 2022, Austria's asset managers managed 1,143 mixed funds with EUR 93 billion in assets, 423 bond funds with EUR 53 billion, 347 equity funds with EUR 37 billion, 48 short-term bond funds with EUR 5 billion, 42 private equity funds with EUR 1 billion, 47 other funds with EUR 0.4 billion as well as 20 real estate funds with managed assets of EUR 11 billion. Funds in accordance with the Sustainable Finance Disclosure Regulation (SFDR) reached a volume of EUR 82 billion, or 41% of the total net asset value.[31]

Austrian pension funds recorded a negative return in 2022. In 2022, the overall return on investment of Austrian pension funds fell to –9.7%, compared

[30] *The rest consists predominantly of nonfinancial assets.*

[31] *Source: FMA Annual report on Asset management in the Austrian funds market.*

to an average return of 3.1% per annum over the past ten years.[32] The largest exposure of the sector are equities (37% of the portfolio), followed by debt securities (32%), and almost all assets are invested via investment funds. Assets under management by Austrian pension funds decreased to EUR 24 billion, whereas the number of beneficiaries (prospective and current recipients) increased by 2.5% to just over 1 million. Currently, 13% of the beneficiaries receive a pension under an occupational pension scheme. Given their defined contribution business model, risks related to liability-driven investment strategies are of no relevance for Austrian pension funds.

[32] *Source: FMA: Quarterly Report on pension funds Q4 2022.*

Special topics

Nontechnical summary in English

An analysis of Austrian banks during the high inflation period of the 1970s

Peter Breyer, Stefan Girsch, Jakob Hanzl, Mario Hübler, Sophie Steininger, Elisabeth Wittig

This study sheds light on how Austrian banks fared between 1969 and 1985, a period marked by high inflation and rising interest rates. Given historical parallels to today's economic environment, we aim to draw conclusions about banks' profitability, balance sheet structure and risk profile. First, in the period under review, banks' total assets expanded rapidly, while their profitability started to decrease from 1975. This development was traceable to a decline in banks' cost efficiency. In other words, banks' expenses grew at a higher rate than their profits. The decrease in profitability was also due to a declining net interest margin, which is calculated by the difference of the interest banks receive on credit products like loans and the interest they pay e.g. holders of savings deposits divided by total assets. Second, regarding the balance sheet structure, interbank lending became more important in the 1970s, while the share of customer deposits in overall liabilities shrank. Third, the period under review was characterized by banks' low risk-bearing capacity and weakening capital position. Amid the economic turbulence during the 1970s, these factors led to various regulatory initiatives meant to reduce the risk emerging from the banking sector. A comparison with the Austrian banking sector today shows that banks have become less dependent on interbank funding and have a higher share of customer deposits. Their funding profile has thus become much more stable than in the 1970s. Also, Austrian banks' equity ratio is significantly higher today than it was back then. Nevertheless, bank profitability might come under pressure in prolonged periods of high inflation given rising administrative and risk costs.

Nontechnical summary in German

Österreichische Banken in Zeiten hoher Inflation: Erkenntnisse aus den 1970er Jahren

Peter Breyer, Stefan Girsch, Jakob Hanzl, Mario Hübler, Sophie Steininger, Elisabeth Wittig

Ziel dieser Studie ist es, die Entwicklung österreichischer Banken im Zeitraum von 1969 bis 1985 vor dem Hintergrund hoher Inflation und steigender Zinsen zu analysieren. Angesichts der Parallelen zur derzeitigen Wirtschaftslage sollen Rückschlüsse auf die Profitabilität sowie Bilanzstruktur und das Risikoprofil von Banken gezogen werden. Unsere Ergebnisse zeigen, dass die Banken im Beobachtungszeitraum ihre Bilanzsumme deutlich ausweiteten, während die Profitabilität ab 1975 sank. Ein wesentlicher Grund dafür waren die in Relation zu den Erträgen stärker steigenden Aufwendungen der Banken, was eine sinkende Kosteneffizienz bedeutete. Dämpfend auf die Profitabilität wirkte sich auch die rückläufige Nettozinsmarge aus. Diese ist definiert als der Zinsüberschuss, d. h. die Differenz aus Zinserträgen (etwa im Zusammenhang mit Krediten) und Zinsaufwendungen (wie etwa für Spareinlagen), in Relation zur Bilanzsumme. Hinsichtlich der Bilanzstruktur österreichischer Banken gewannen in den 1970er Jahren Interbankenkredite an Bedeutung, während der Anteil der Kundeneinlagen an den gesamten Verbindlichkeiten zurückging. Weiters wiesen die Banken im untersuchten Zeitraum eine geringe Risikotragfähigkeit auf, und ihre Kapitalausstattung verschlechterte sich. Angesichts der wirtschaftlichen Turbulenzen in den 1970er Jahren führten diese Umstände zu einer Reihe von Regulierungsinitiativen mit dem Ziel, das vom Bankensektor ausgehende Risiko zu verringern. Im Vergleich zu damals sind die österreichischen Banken heute weniger von Interbankenfinanzierung abhängig, und der Anteil von Kundeneinlagen hat sich vergrößert. Die Refinanzierungsstruktur hat dadurch gegenüber den 1970er Jahren deutlich an Stabilität gewonnen. Zudem hat sich die Eigenkapitalquote der österreichischen Banken signifikant erhöht. Nichtsdestotrotz könnte in Phasen anhaltend hoher Inflation die Ertragskraft der Banken aufgrund steigender Verwaltungs- und Risikokosten unter Druck geraten.

An analysis of Austrian banks during the high inflation period of the 1970s

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Motivated by the current economic environment of high inflation and increasing interest rates, we take a closer look at the Austrian banking sector between 1969 and 1985. Given that period's parallels to the current situation, we aim to draw conclusions about the impacts high inflation may have on banks' profitability, balance sheet structure and risk profile. Our findings show that the period under review was characterized by a rapid expansion of banks' total assets. From 1975 onward, profitability declined steadily, as pressure on interest margins was mounting (given increasing competition and funding costs, expansion via investments in low-yield assets and interest rate dynamics) and cost efficiency was on the decline (given increasing wages and expanding branch networks). Due to strong credit growth and risk-inadequate pricing, the cost of risk remained relatively low. Regarding the balance sheet structure, interbank lending became more important in the 1970s, while the share of customer deposits in overall liabilities declined. Finally, banks' equity ratio contracted significantly, which indicated a lower risk-bearing capacity and a weakening capital position. The economic turbulence that characterized much of the 1970s and banks' rapidly declining capital ratios also led to various regulatory initiatives meant to reduce the risk emerging from the expanding banking sector. A comparison with the current situation shows that, today, Austrian banks are less dependent on interbank funding and have a higher share of customer deposits. In addition, Austrian banks' equity ratio is significantly higher today than it was in the 1970s.

JEL classification: G21, G28, N14, N24
Keywords: Austrian banks, profitability, inflation, 1970s, 1980s, historical banking data

How did Austrian banks fare between 1969 and 1985 in terms of profitability, balance sheet structure and risk profile? Lessons from that period could be highly relevant given parallels to today's economic environment of increasing inflation, interest rates and geopolitical tensions.

Using our own institution's statistical data and historical financial statements of five large Austrian banks[2], we compiled a representative, comprehensive dataset that allowed us to draw some useful conclusions with respect to current developments.

The paper is structured as follows: in section 1, we take a look at how inflation, interest rates and other macroeconomic variables evolved in Austria between 1969 and 1985. In section 2, we zero in on Austrian banks' performance in terms of profitability and various profit components in that period as well as the evolution

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[2] *Girozentrale Wien, Österreichische Länderbank, Zentralsparkasse, Creditanstalt and Genossenschaftliche Zentralbank AG. Due to incomplete data, Genossenschaftliche Zentralbank AG is only included in the charts on return on equity and equity ratio (charts 4 and 13). The five banks accounted for around one-third of the Austrian banking sector's total assets during the period under review. The data provided by the five banks always reflect the highest consolidation level.*

of cost efficiency and cost of risk. In section 3, we analyze structural trends in Austrian banks' balance sheets between 1969 and 1985, while also examining their capital structure and risk-bearing capacity. Finally, section 4 summarizes the key findings.

1 The Austrian macroeconomic framework from 1969 to 1985

To set the scene, we first explore the macroeconomic situation in Austria from 1969 to 1985.

1.1 Austro-Keynesianism, inflation, price dynamics and regulatory initiatives

The period from 1969 to 1985 – dubbed "Austro-Keynesianism" – was characterized by a hard currency policy, wage moderation through collective bargaining with a view to controlling inflation, labor hoarding as well as anticyclical fiscal and coordinated monetary policies. Meant to achieve full employment, these policies led to an unemployment rate below 2% in the 1970s. Only after 1983 did the Austrian unemployment rate start to rise again (Straumann, 2010).

In 1955, the Federal Act on the Oesterreichische Nationalbank (Nationalbank Act) entered into force. Its provisions increased central bank independence and extended the mandate of the Oesterreichische Nationalbank (OeNB) to maintaining both purchasing power at home and the value of the Austrian schilling (ATS) vis-à-vis international currencies. Even before that, in 1953, the Austrian schilling was pegged to the US dollar (ATS 26/USD). Once the Bretton Woods system ended in August 1971, Austria implemented a currency basket ("Indikator") where the schilling was pegged to currencies of Austria's biggest trading partners, expressed in a currency not included in the indicator, i.e. USD.[3] Most of the currencies were eliminated from the indicator over time as they turned unstable; this way, the de facto peg to the Deutsche mark emerged in 1976 (Beer et al., 2016; Mooslechner et al., 2007; Schmitz, 2016; Straumann, 2010).

After the 1971 end of the Bretton Woods System and the first oil price shock of October 1973, inflation in Austria and in many other parts of the world soared to new heights in the mid-1970s (chart 1). In Austria, inflation peaked at 10.2% in June 1974, which was followed by a recession. Having been tamed afterward, inflation fell to 3.0% in July 1978. However, when the second oil price shock struck shortly thereafter in 1979 and the cost of energy increased sharply, inflation surged once more, peaking in April 1981 at 7.4%. Inflation spiked again in 1984, which was, among other things, due to an increase in value-added tax (Beer et al., 2016; Pollan, 1984).

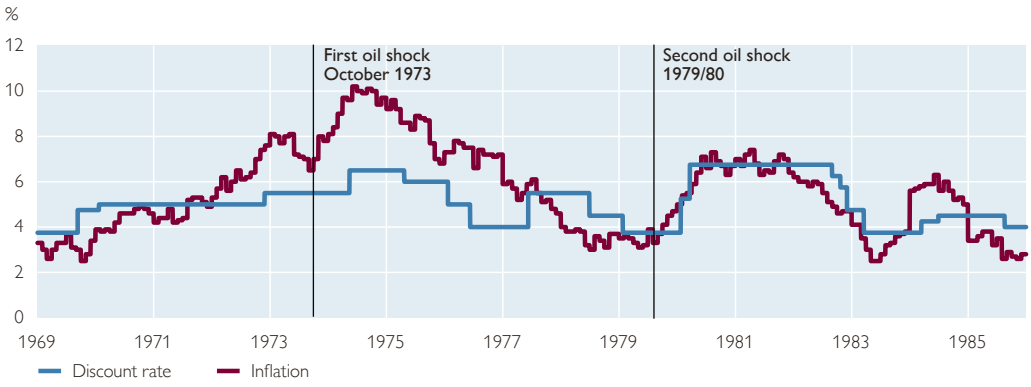
Until 1979, interest rates had been kept relatively low, with the goal of forcing economic growth by stimulating investment. In 1980, contrary to most other Western countries, Austria's policy shifted to a covered interest parity approach aimed at preventing short-term capital outflows. During the period under review, the OeNB set the following two interest rates: the discount rate and the lombard rate.[4]

[3] *The Bretton Woods system formally failed in March 1973, but it may be said to have ended in 1971 given that the gold standard was lifted in that year.*

[4] *The discount rate was the interest rate used for selling bills of exchange to the OeNB. The lombard rate was the interest rate the OeNB charged to commercial banks for extending short-term loans, where banks were required to pledge specific securities as collateral. In 1999, the discount rate was replaced by the base rate (Basiszinssatz) and the lombard rate by the reference rate (Referenzzinssatz).*

Chart 1

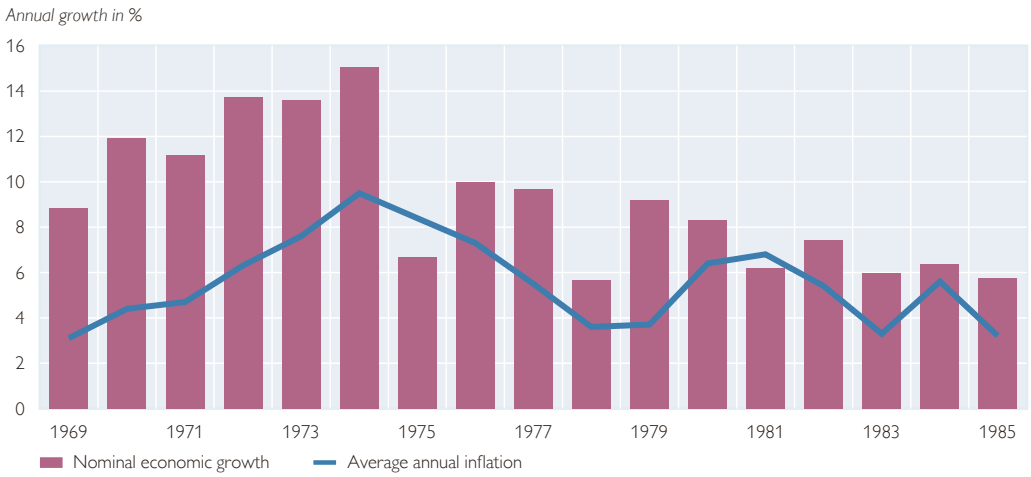
Discount rate and inflation in Austria



Source: OeNB.

Chart 2

Economic growth and inflation in Austria



Source: OeNB.

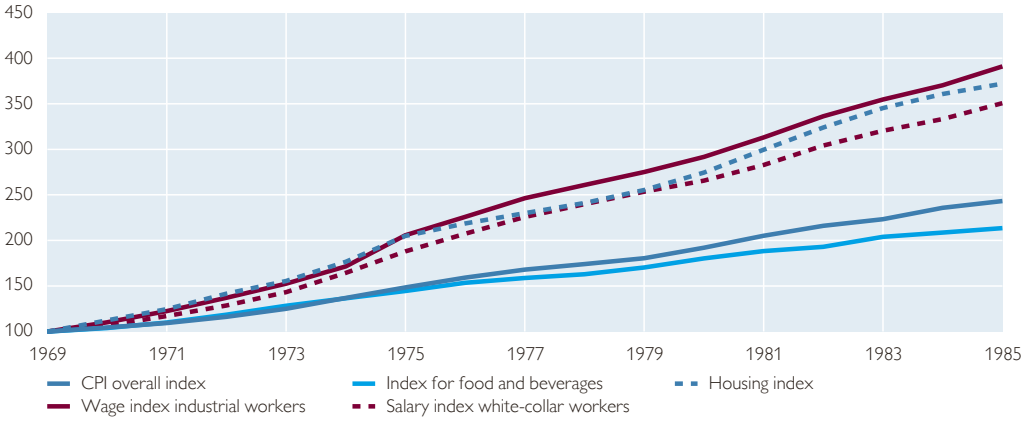
From 1969 to 1985, the discount rate remained between 3.75% and 6.75% (chart 1). Raised only gradually during the first inflationary phase, the discount rate was raised sharply during the second such phase, and it peaked at 6.8% in March 1980 (Mooslechner et al., 2007).

Real GDP grew significantly from 1969 to 1975, when the economy contracted for the first time since 1950. In nominal terms, GDP growth remained above 5% during the whole observation period (chart 2). Economic expansion in the first half of the 1970s was mainly driven by considerable export growth on the back of increased foreign demand. Fiscal policy – and especially the Austrian government's investment policy – also contributed to this trend. From the second half of the 1970s onward, rising oil prices and energy costs had a negative impact on the economy, slowing down growth. The lack of coordination in international economic policy observed since 1975 likewise had a downward effect (Kernbauer, 2018).

Chart 3

Development of prices and wages in Austria

Index: 1969 = 100



Source: OeNB.

Consumer prices in Austria increased by 143% in the period under review, which translates into an annual growth rate of 5.7% (chart 3). Food and beverage prices increased at a comparatively lower rate (114%), while housing prices surged (272%). Wages for industry workers grew by 291% and salaries for white-collar workers by 251%. The highest real wage increase (of almost 10%) was observed in 1975 (Straumann, 2010).[5]

The 1970s were not only characterized by significant changes in macroeconomic conditions, but also led to important regulatory milestones. In 1979, Austria adopted its own banking act (Kreditwesengesetz 1979 – KWG 1979), after years of using the German banking act; in addition, voluntary credit control agreements were concluded with the banking industry. The KWG allowed, for example, to open branches without a concession, introduced the dual control principle for important decisions by managers, made it possible to include subordinated capital as equity under specific circumstances, capped loan sums per debtor at a maximum of 5% to 7% of total deposits, prescribed equity requirements depending on total liabilities and allowed professional associations to open deposit insurance schemes. Banking crises in the early 1980s led to amendments of the KWG in 1986, e.g. equity requirements became dependent on asset-side balance sheet items and included contingent liabilities, which meant that foreign currency assets had to be backed by capital; consolidation rules were included; liquidity requirements were to consider the maturity structure; slight supervisory changes were introduced (Döme et al., 2016; Handler and Mooslechner, 1986).

1.2 Inflation today – what is different, what is similar?

Current inflationary dynamics are traceable to a mix of supply chain disruptions, increasing demand after the end of COVID-19-related lockdowns and pandemic-

[5] *For one thing, wage negotiations did not account for the economic downturn in 1975; for another, legal working hours per week were reduced by two hours in 1975, with full compensation. The subsequent years saw smaller wage increases, which was partially due to the high real wage growth in 1975.*

related fiscal support measures. Since the outbreak of Russia's war against Ukraine, the dynamics have been amplified by soaring food and energy prices. While employment rates in the euro area have risen to unprecedented levels, wages have not yet increased as much as prices, which mainly reflects the lagged reaction of wages to price movements. In comparison to the 1970s, today's unemployment rate (6%, national definition) is much higher (1970s: around 2%). The current level of high inflation has also led to monetary policy tightening in the euro area (Holler and Reiss, 2023).

Like in the 1970s, rising energy prices are the main driver of inflation today. However, what differs very much from the 1970s shocks are fiscal and monetary policies as well as the nominal and real GDP growth rates observed up to the inflationary shock. While monetary policy in the years prior to the 2020s inflationary shock was expansive with zero interest rates, the discount rate stood at 3.8% in the early 1970s.

2 Austrian banks' profitability

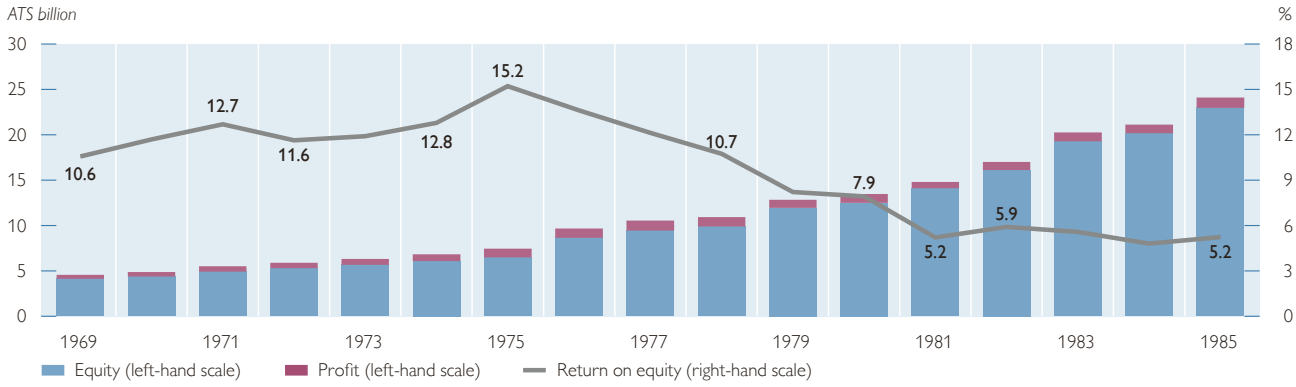
In this section, we take a closer look at Austrian banks' profitability and cost structure between 1969 and 1985. First, we focus on profit components, zeroing in on the return on equity (RoE) and net interest margin (NIM). Next, we examine the cost structure by analyzing the cost-to-income ratio and cost of risk.

2.1 Profitability increased until 1975, before declining until early 1980s

Between 1969 and 1975, Austrian banks recorded high profitability, measured in terms of RoE, with the RoE increasing from 10.6% to 15.2% (chart 4). However, between 1975 and 1981, the RoE dropped to 5.2% and remained at that low level until 1985. The annual growth rate of bank profits edged up by only around 2% per year between 1975 and 1985, significantly down from the 15% increase observed from 1969 to 1975. Despite rapidly growing balance sheets, Austrian banks' profitability deteriorated. The main reasons were increased competition, which led to higher margin pressure, and higher refinancing costs due to increased capital market funding.

Chart 4

Return on equity of Austrian banks



Source: Banks' annual reports 1969–1985, authors' calculations.

2.2 Factors affecting bank profitability

After 1975, Austrian banks' profitability fell largely due to a declining NIM and accelerating costs, while credit risk costs remained relatively low (chart 5). Austrian banks' NIM decreased continuously from 2.2% in 1970 to 1.2% in 1981, and then remained relatively stable until 1985. From 1969 to 1975, banks' net interest income increased at a compounded annual growth rate of 16.4%. In the subsequent ten years, however, the average annual growth rate of net interest income decreased to 10.3%.

That decrease was largely attributable to a change of the balance sheet structure and the shape of the yield curve in addition to the banks' business model and increased competition. Bank funding underwent significant changes, with the share of interbank liabilities and capital market funding increasing markedly. At the same time, the proportion of low-cost savings deposits declined steadily.

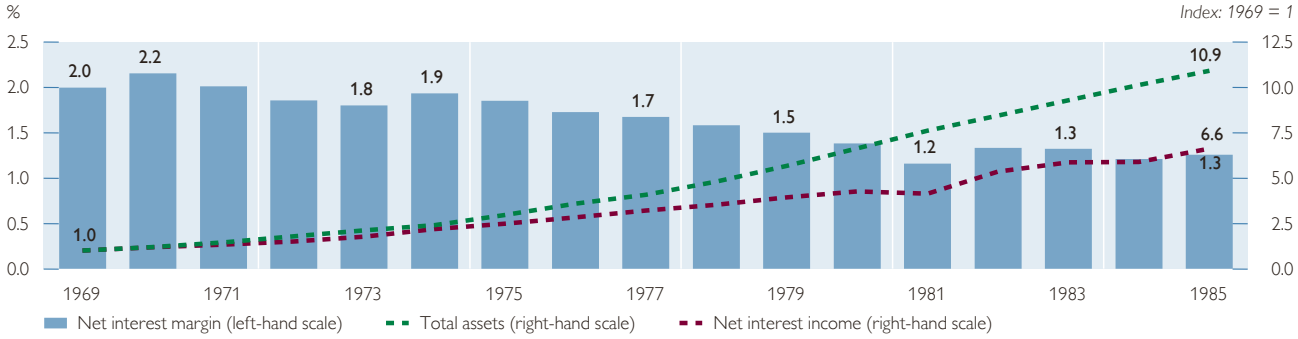
Furthermore, the temporary inversion of the yield curve in the early 1980s adversely affected funding conditions and interest margins (Österreichische Postsparkasse, 1982). This is relevant because a flattening or inversion of the yield curve is often associated with a weak economic outlook, with lower net interest margins and consequently weaker banking profitability (Bluwstein et al., 2021).

Another factor contributing to the decline in profitability and the NIM was the business strategy Austrian banks pursued in the 1970s. Their strong focus on acquiring market share led to stiff competition and subsequently lower margins. From 1969 to 1975, Austrian banks' total assets grew at an annual rate of almost 20%. In the decade until 1985, their growth remained robust, expanding at close to 14% per year, which was significantly higher than nominal GDP growth. During the 1970s, Austrian banks' business abroad grew markedly, consisting mainly of deposits, securities and loans to foreign credit institutions that historically generated low returns. The share of foreign assets in total assets rose from 7.5% in 1970 to 15% in 1979, and the share of foreign liabilities increased from 7% to 19% during the same period (Kernbauer, 2018).

Moreover, banks' ownership structure may likewise impact profitability. In our sample, three credit institutions (Österreichische Länderbank, Zentralsparkasse and Creditanstalt) were partially or fully state-owned. State-owned banks may exhibit inefficiencies because of government bureaucracy, weak incentives for

Chart 5

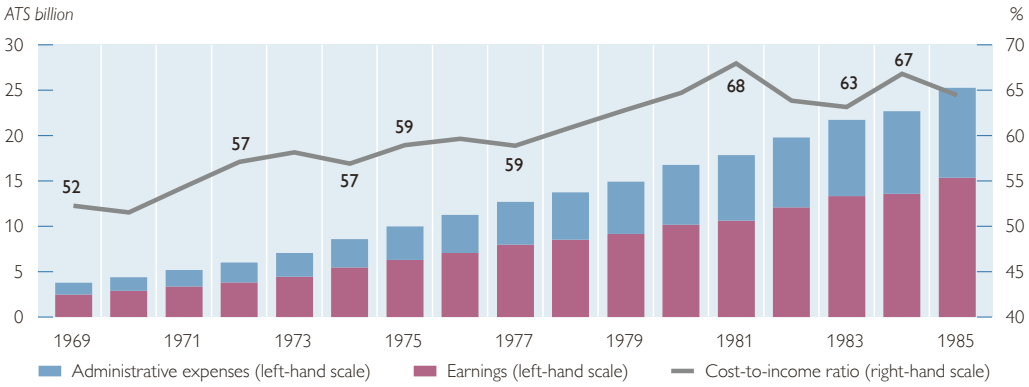
Net interest margin, total assets and net interest income of Austrian banks



Source: Banks' annual reports 1969–1985, authors' calculations.

Chart 6

Cost-to-income ratio of Austrian banks



Source: Banks' annual reports 1969–1985, authors' calculations.

managers and potential misallocation of resources (higher risk taking, risk-inadequate pricing) due to political interference (Rumler and Waschiczek, 2016). However, the empirical evidence is not entirely clear; as shown by Dietrich and Wanzenried (2011), government-owned banks may even be more profitable thanks to greater viability and safety during crises.

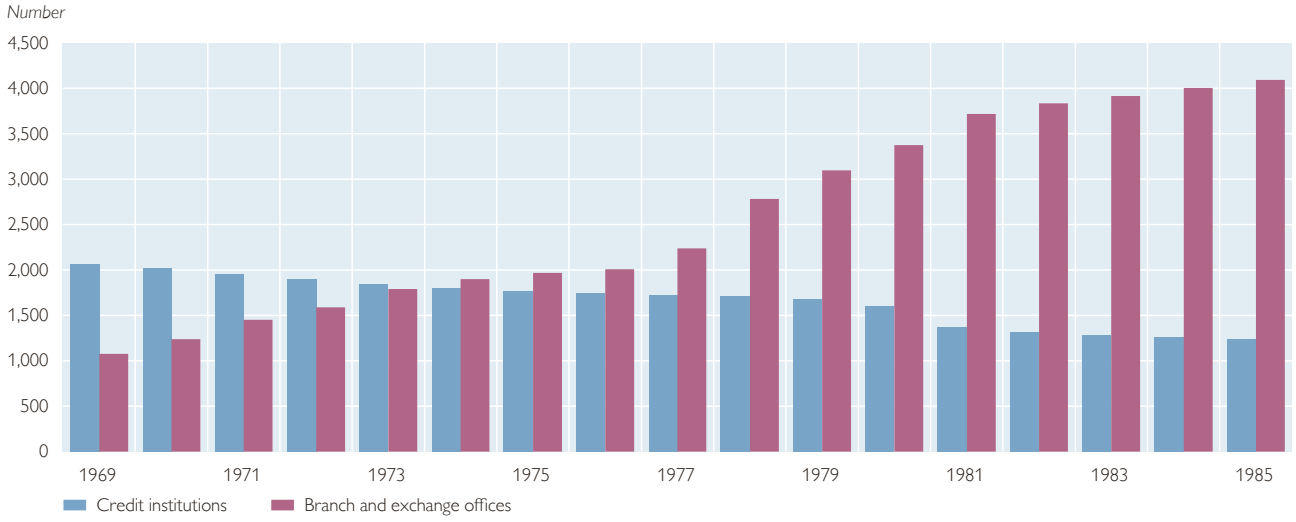
Another key factor driving down bank profitability after 1975 was banks' cost efficiency, which was on the decrease throughout the 1970s. As earnings did not keep up with the rising costs, banks' cost efficiency deteriorated in the 1970s. The cost-to-income ratio increased from 52% (1969) to 68% (1981) in the period under review (chart 6). Costs were driven by (1) a significant increase in administrative costs (for both staff and material) and (2) rapid growth of the branch network.

Growth of wages and staff expenses exceeded the overall consumer price index. This put pressure on the cost base of Austrian banks and companies in general (Guger and Marterbauer, 2005). Between 1969 and 1975, staff costs increased by around 19% per year, while annual inflation averaged out to 6.8%. In the second half of the observation period, i.e. from 1976 to 1985, staff costs increased by an average 10% per year, and average annual inflation ran to 5%.

Banks' cost efficiency was also weighed down by banks stepping up the expansion of their branch networks in the second half of the 1970s (chart 7). 1978 saw the largest increase in the number of branches (and exchange offices) as branch openings were deregulated in 1977. In light of a general tendency toward market liberalization, the policy to ask the finance ministry for approval before opening a new branch was abolished. After 1978, no prior approval was required for banks to open new branches. This branching deregulation enabled Vienna-based banks to expand their business into rural areas (Dirninger, 2010). Overall, given real wage growth and the rapid expansion of banks and their branch networks (and the ensuing increase in employees), Austrian banks' cost efficiency was under permanent pressure.

Chart 7

Credit institutions and branches in Austria



Source: OeNB.

Box 1

Liberalization in the Austrian banking sector

The main period of liberalization in Austria's banking sector was between the late 1970s and 1990s, which was rather late by international standards. Deregulation was marked by the following three milestones. First, the prior authorization requirement for establishing new branches was abolished in 1977. Second, the interest rate adjustment clause (Zinsgleitklausel) was done away with; under that clause, the government had held interest rates within a stable bandwidth to ensure a stable interest rate environment. Later, interest rates were determined by the market under cartel-like conditions. The most prominent example was the Lombard Club, in which the largest Austrian banks got together on a monthly basis to arrange common conditions and interest rates. Third, banking sector liberalization was also reflected in the expansion of business areas, such as into investment banking, and increasing geographic diversification, e.g. foreign investments (Dirninger, 2010).

Banks' cost of risk[6] decreased in our sample between 1970 and 1985 (chart 8). From 1971 until 1978, it declined steadily, while being more volatile in the years thereafter. The cost of risk increased from 0.17% (1978) to 0.27% (1980), before falling to an all-time low of 0.09% in 1983. Overall cost of risk remained remarkably low throughout the period under review.

Interestingly, despite the decrease in the cost of risk, the number of insolvencies increased at the same time (chart 9). This counterintuitive trend between the cost of risk and the number of insolvencies can be explained as follows. The main reason why credit risk costs remained relatively low throughout the review period was the high growth of customer loans. Risk provisions increased in absolute terms, but customer loans expanded at a faster pace, which reduced the respective ratio of

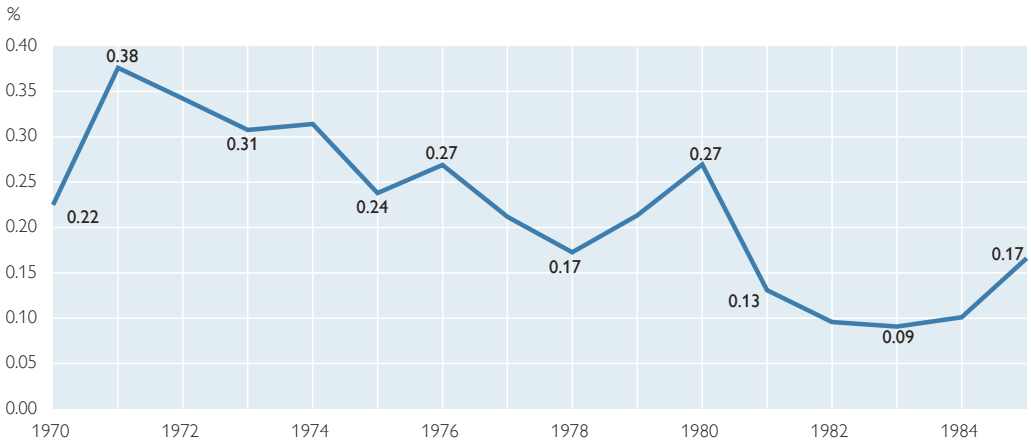
[6] *Cost of risk is defined as the ratio of newly booked risk provisions to claims on customers.*

risk provisions to total loans. Importantly also, back then, accounting rules and regulations on provisioning were not as harmonized and granular as today. There are indications that the pricing of credit risk was rather subjective, and often the credit margin level was not adequately risk adjusted (Kernbauer, 2018).

At the time, measures concerning the liability side of the balance sheet were hardly ever economically binding and therefore had little impact on credit growth. However, asset-side measures were somewhat effective in curtailing excessive credit growth. Today's regulatory awareness and standards (e.g. minimum capital requirements) regarding lending are higher (Döme et al., 2016).[7]

Chart 8

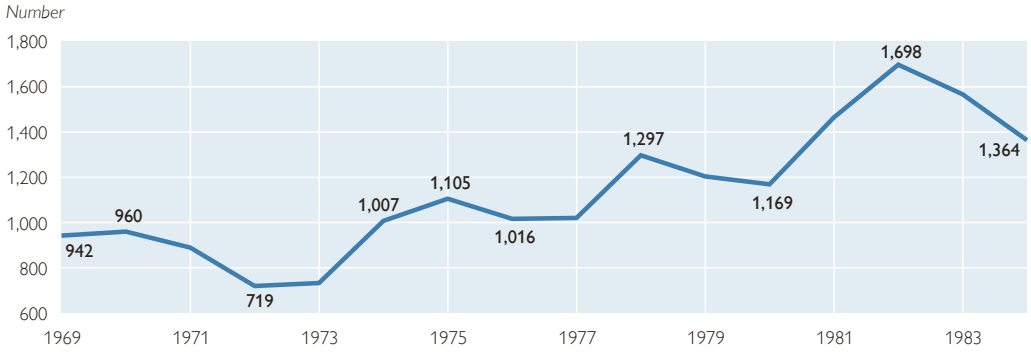
Cost of risk of Austrian banks



Source: Banks' annual reports 1969–1985, authors' calculations.

Chart 9

Insolvencies in Austria

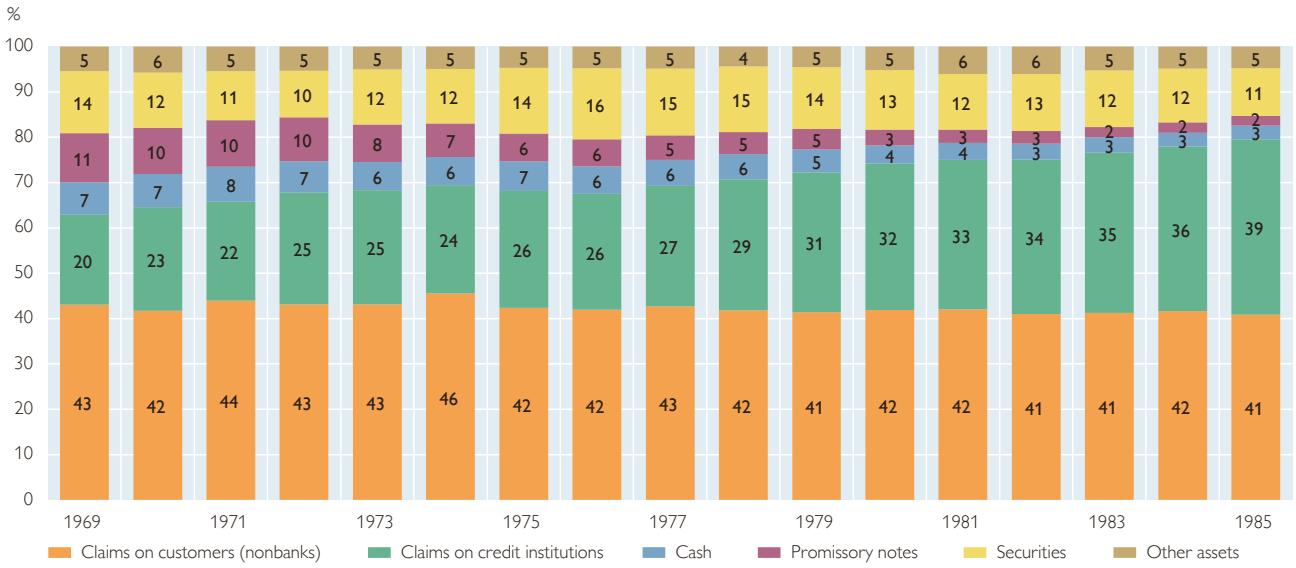


Source: OeNB.

[7] *The most prominent asset-side measure was a limit to bank lending called the Limes, which was introduced in 1973, where the OeNB set a target growth rate for credit to nonbanks (1% per month of the stock of loans extended to domestic nonbanks).*

Chart 10

Austrian banks' assets



Source: Banks' annual reports 1969–1985, authors' calculations.

3 Austrian banks' balance sheet structure between 1969 and 1985: weakening funding profile and risk-bearing capacity

This section highlights structural trends in Austrian banks' balance sheets between 1969 and 1985, broken down into the asset side, the liability side and the capital structure.

3.1 Assets: increasing importance of interbank lending

From 1969 to 1985, the share of loans to customers (households and nonfinancial corporations) in total assets remained almost stable, with customer loans representing the most important asset position throughout the period under review (chart 10). Loans to other credit institutions increased remarkably from 20% in 1969 to 39% in 1985, as interbank lending was gaining importance in the 1970s. By contrast, the share of promissory notes, securities and cash balances in total assets decreased significantly. In particular, the share of promissory notes in total assets declined continuously, contracting from around 11% in 1969 to a mere 2% in 1985.

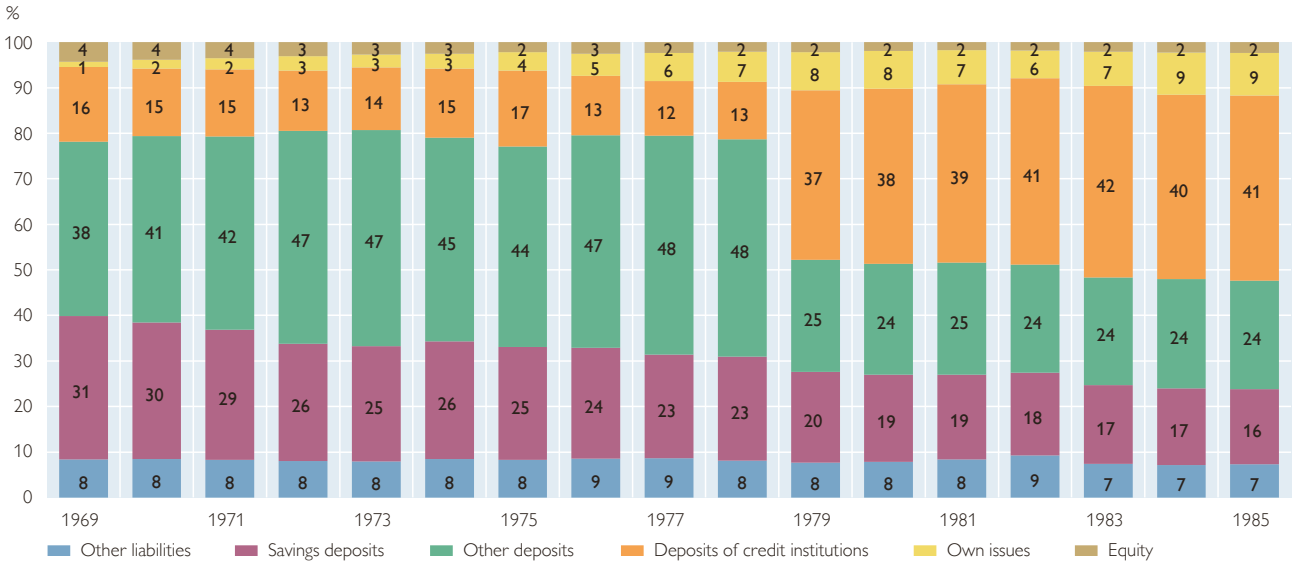
3.2 Liabilities: declining customer deposits offset by interbank lending and banks' own issues

The increasing importance of interbank lending is also reflected in the structural development of Austrian bank liabilities (chart 11). Interbank lending growth (indicated by an increasing share of deposits from other credit institutions) went hand in hand with decreasing savings deposits, whose share fell by half, from 31% in 1969 to 16% in 1985.[8] Furthermore, the decline in customer deposits (in relation

[8] *Before 1979, creditors were broken down by maturity, and from 1979 onward, following an amendment of Austrian credit law, more detailed information became available on the type of creditor.*

Chart 11

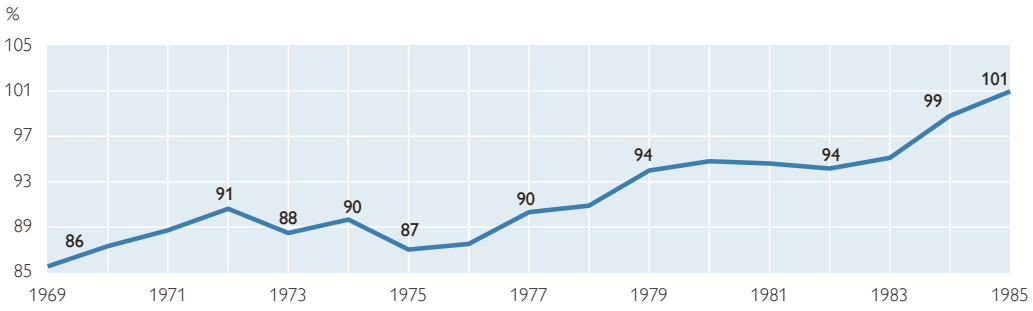
Austrian banks' liabilities



Source: Banks' annual reports 1969–1985, authors' calculations.

Chart 12

Loan-to-deposit ratio of Austrian banks



Source: Banks' annual reports 1969–1985, authors' calculations.

to total liabilities) was partially offset by banks' own issues. While the relative importance of own issues increased, the aggregate equity ratio decreased from 4.2% in 1969 to just 2.2% in 1985.

Overall, the risk profile of the Austrian banking sector deteriorated from 1969 to 1985. As indicated by a decreasing equity ratio, leverage increased, and banks became more dependent on wholesale funding.

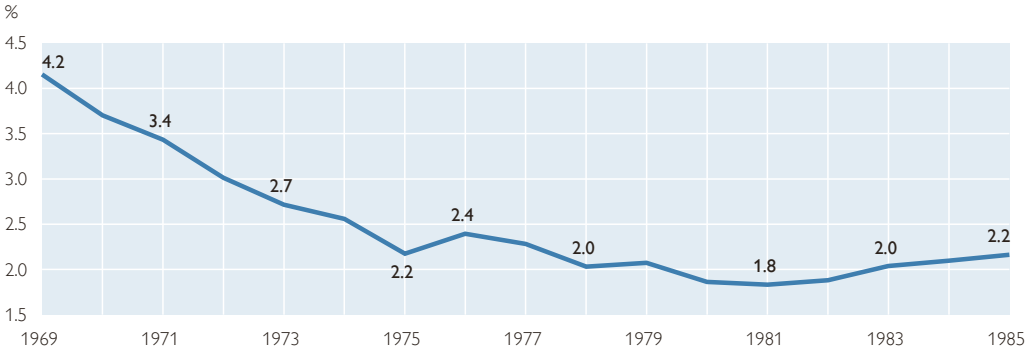
The increasing role of interbank lending for Austrian banks is mirrored by a rising loan-to-deposit ratio (chart 12), which resulted in a less stable funding position. The loan-to-deposit ratio increased from 86% in 1969 to 101% in 1985.

3.3 Decline in Austrian banks' equity ratio and risk-bearing capacity

From 1969 to 1975, the relation of equity to total assets, i.e. the equity ratio, decreased significantly, namely from 4.2% in 1969 to 2.2% in 1975 (chart 13). The

Chart 13

Equity ratio of Austrian banks



Source: Banks' annual reports 1969–1985, authors' calculations.

downtrend indicated a lower risk-bearing capacity and a weakening capital position. From 1975 to 1985, the equity ratio remained relatively stable at a low level, a trend which was comparable to other countries such as the United States (McNamara et al., 2019).

Banks' decreasing equity ratio was primarily attributable to the rapid increase in total assets during that period. In absolute terms, equity increased as well, but total assets increased at an even faster pace. In combination with the expanding branch network and increasing operative costs, this put the equity ratio on a downward trend throughout the 1970s. Therefore, the declining equity ratio not only reflected the significant increase in total assets but may also be seen as an indicator for Austrian banks' weak profitability during that time. Indeed, having declined markedly from 1975 to 1985, Austrian banks' profitability significantly underperformed the OECD average. Until 1975, the increase in equity (in absolute terms) was mainly due to retained earnings, but thereafter external capital injections became more important as profitability decreased and balance sheets were expanded. In the 1970s, amid rising economic tensions and uncertainties and a global economic slowdown, Austrian banks' deteriorating capital position posed a major risk to the stability of the Austrian banking sector (Kernbauer, 2018).

In light of the global economic turbulence that characterized much of the 1970s, bank capital ratios declined significantly in many countries during that decade. Not surprisingly, by the early 1980s, the Basel Committee on Banking Supervision (BCBS) was mainly concerned with banks' capital adequacy. The BCBS's aim was to counteract the deteriorating capital position of the global banking system and avoid any negative impact on the global financial system, while creating a level playing field for banks. In 1988, the BCBS adopted the Basel Capital Accord (Basel I) that established a minimum capital requirement for internationally active banks of the G10 countries (McNamara et al., 2019).

In Austria, the considerable decline in banks' equity ratio led to an amendment of the banking act, i.e. the Kreditwesengesetz 1979, which took effect in 1986.

Box 2

Comparing Austrian banks' recent balance sheet structure, profitability and risk-bearing capacity with the 1970s[9]

Examining the Austrian banking sector's balance sheet structure, profitability and risk-bearing capacity from 1985 to 2022, we found that loans to other credit institutions have become less important to Austrian banks in recent years. Their share in total assets decreased from 39% in 1985 to 20% in 2006, and stood at 7% in mid-2022. While the share of loans to customers in total assets had remained relatively stable from 1969 to 1985, such loans became more important in recent years, increasing from 49% in 2006 to 60% in mid-2022.

The decreasing role of interbank business in recent years is also reflected on the banking sector's liability side. The share of deposits of other credit institutions in total liabilities shrank from 41% in 1985 to 23% in 2006, and amounted to 10% in mid-2022. Customer deposits, in contrast, increased from 41% of total liabilities in 2006 to 58% in mid-2022. Therefore, interbank lending had increased significantly from 1969 to 1985 (while the share of loans to customers remained stable) but became less important starting with the 2007–2009 financial crisis (while the share of loans to customers increased remarkably). In recent years, Austrian banks have apparently begun refocusing their business models on their core business.

Regarding the risk profile of Austrian banks, we conclude that their funding profile is much more robust today than in the 1970s, given the decreasing importance of interbank lending and the rising share of customer deposits in total liabilities. Furthermore, banks' capital position has improved remarkably in recent years. While the Austrian banks in our sample recorded an equity ratio of 2.2% in 1985, the respective figure for the Austrian banking sector stands at 8.0% in mid-2022.

In comparison to the relatively high net interest margin at the beginning of the 1970s (2%), the aggregate NIM of Austrian banks is remarkably lower today, running to 1.4% (consolidated) and 0.9% (unconsolidated) in mid-2022. As banks today start with lower NIM levels, their operational income provides them with less leeway to increase deposit rates. In 2022, rising interest rates started to have a positive effect on banks' profitability. However, our findings indicate that bank profitability might come under pressure in prolonged periods of high inflation. In the 1970s, banks' cost-to-income ratio increased due to cost pressure stemming from new branches and higher wages, which highlights the importance of cost control during periods of high inflation. During the 1970s, we did not find a significant increase in banks' cost of risk. Yet, in light of modern accounting standards and regulations regarding risk-adjusted pricing, we would expect the cost of risk to rise during periods of high inflation, which would put pressure on banks' profits.

4 Summary and conclusions

Motivated by the current economic environment, we analyzed the development of a sample of Austrian banks between 1969 and 1985. From 1969 to 1975, the banks rapidly expanded their total assets at an annual growth rate of nearly 20%, followed by a slightly lower annual growth rate (14%) from 1975 to 1985. Their profitability remained positive throughout the observation period, peaking in 1975 with an aggregate return on equity of 15.2%. In the second half of the 1970s, however, profitability declined steadily, as pressure on interest margins was mounting (given increasing competition and funding costs, expansion via investments in low-yield

[9] *Source: OeNB (consolidated banking data). Some smaller banks did not report detailed data on their loan structure for 2022; we therefore assumed that those banks' share of loans to other banks is similar to that of the other banks which reported separate data for loans to customers and loans to other banks.*

assets and interest rate dynamics) and cost efficiency was on the decline (given increasing wages and expanding branch networks). Credit risk costs remained relatively low from 1969 to 1985, as the increase in risk provisions (in absolute terms) lagged behind rapid loan growth. Furthermore, less comprehensive accounting rules on provisioning also helped keep the cost of risk at a relatively low level.

As to structural balance sheet developments, from 1969 to 1985, interbank lending became ever more important, while the share of customer deposits in total liabilities declined constantly. That decline was offset both by interbank lending and banks' own issues. Austrian banks' growing dependence on wholesale funding was reflected in their aggregate loan-to-deposit ratio, which increased from 86% in 1969 to 101% in 1985.

Importantly, the risk profile of the Austrian banks under review deteriorated significantly from 1969 to 1985, both in terms of funding and solvency. From 1969 to 1975, their aggregate equity ratio almost dropped by half, namely from 4.2% in 1969 to 2.2% in 1975, which pointed to a lower risk-bearing capacity and a weakening capital position. From 1975 to 1985, the equity ratio remained relatively stable at a low level. The decreasing equity ratio reflected both the banks' rapid growth of total assets and weakening profitability. The economic turbulence that characterized much of the 1970s and rapidly declining bank capital ratios led to various regulatory initiatives meant to reduce the risk emerging from the expanding banking sector. Cases in point are the 1988 adoption of Basel I and the 1986 amendment of the Austrian banking act (Kreditwesengesetz).

Today, Austrian banks' funding profile is much more stable than in the 1970s, as their dependence on interbank funding has lessened and the share of customer deposits has increased remarkably. In addition, Austrian banks' equity ratio is significantly higher today than it was in the 1970s. However, as Austrian banks today start with lower levels of net interest margins compared with the 1970s, their operational income provides them with less leeway to increase deposit rates. To date, rising interest rates have had a positive effect on banks' profitability. Bank profitability might, however, come under pressure in prolonged periods of high inflation in the face of increasing administrative and risk costs.

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Annex

Key financial indicators

Cutoff date for data: May 3, 2023

Conventions used:
x = no data can be indicated for technical reasons.
.. = data not available at the reporting date.

Revisions of data published in earlier volumes are not indicated.
Discrepancies may arise from rounding.

International financial markets

Table A1

Short-term interest rates[1]

	2015	2016	2017	2018	2019	2020	2021	2022
	Three-month rate, period average, %							
Euro area	–0.02	–0.26	–0.33	–0.32	–0.36	–0.43	–0.55	0.34
USA	0.32	0.74	1.26	2.31	2.33	0.65	0.16	2.38
Japan	0.17	0.08	0.06	0.07	0.07	0.07	0.07	0.06
United Kingdom	0.57	0.50	0.36	0.72	0.81	0.30	0.09	2.00
Switzerland	–0.73	–0.80	–0.82	–0.78	–0.75	–0.69	–0.74	–0.13
Czechia	0.31	0.29	0.41	1.27	2.12	0.86	1.13	6.28
Hungary	1.61	0.99	0.14	0.12	0.19	0.70	1.44	9.92
Poland	1.75	1.70	1.73	1.71	1.72	0.67	0.54	6.02

Source: Bloomberg, Eurostat, Macrobond.

[1] *Average rate at which prime banks are willing to lend funds to other prime banks for three months.*

Table A2

Long-term interest rates[1]

	2015	2016	2017	2018	2019	2020	2021	2022
	Ten-year rates, period average, %							
Euro area	1.27	0.93	1.17	1.27	0.58	0.21	0.20	2.04
USA	2.14	1.83	2.32	2.81	2.33	0.89	1.44	2.95
Japan	0.37	–0.01	0.04	0.06	–0.08	0.00	0.06	0.22
United Kingdom	1.79	1.22	1.18	1.41	0.88	0.32	0.74	2.38
Switzerland	0.05	–0.36	–0.09	0.03	–0.43	–0.50	–0.26	0.78
Austria	0.75	0.38	0.58	0.69	0.06	–0.23	–0.09	1.71
Czechia	0.58	0.43	0.98	1.98	1.55	1.13	1.90	4.33
Hungary	3.43	3.14	2.96	3.06	2.47	2.23	3.06	7.57
Poland	2.70	3.04	3.42	3.20	2.35	1.50	1.95	6.05

Source: ECB, Eurostat, Macrobond.

[1] *Yields of long-term government bonds.*

Table A3

Stock indices

	2015	2016	2017	2018	2019	2020	2021	2022
	Annual change in %, period average							
Euro area: EURO STOXX	11.76	–9.67	17.16	–0.48	–0.37	–3.69	24.46	–7.44
USA: S&P 500	6.71	1.63	16.92	12.13	6.09	10.45	32.80	–4.09
Japan: Nikkei 225	24.21	–11.92	19.47	10.40	–2.75	4.67	26.97	–5.47
United Kingdom: FTSE100	–1.38	–1.74	13.96	–0.21	–1.17	–13.75	11.57	5.06
Switzerland: SMI	4.23	–10.12	10.91	–0.16	9.56	4.01	15.15	–2.74
Austria: ATX	1.28	–5.42	34.83	7.56	–8.95	–20.45	42.45	–6.98
Czechia: PX 50	0.83	–11.53	14.31	8.04	–3.16	–11.65	29.13	6.36
Hungary: BUX	17.15	28.96	31.47	5.51	10.14	–10.36	29.42	–9.59
Poland: WIG	–0.31	–9.87	30.11	–2.72	–1.27	–13.79	29.17	–12.64

Source: Macrobond.

Table A4

Corporate bond spreads[1]

	2015	2016	2017	2018	2019	2020	2021	2022
	Percentage points, period average							
	Euro area							
AA	0.73	0.80	0.73	0.70	0.79	0.86	0.63	1.14
BBB	1.91	2.11	1.70	1.78	1.85	1.83	1.29	2.24
	USA							
AA	1.04	0.93	0.74	0.76	0.72	0.96	0.60	0.92
BBB	2.13	2.21	1.54	1.59	1.73	2.05	1.22	1.99

Source: Macrobond.

[1] *Spreads of seven- to ten-year corporate bonds against ten-year government bonds (euro area: German government bonds).*

Austrian corporate and household sectors

Table A5

Financial investment of households[1]

	2015	2016	2017	2018	2019	2020	2021	2022
	EUR billion, four-quarter moving sum							
Currency	0.9	0.6	0.6	0.8	0.9	2.3	–0.2	1.6
Deposits	6.5	10.3	8.8	11.5	11.8	17.7	12.1	5.4
Debt securities[2]	–3.5	–2.7	–2.7	–1.8	–1.1	–3.1	–2.2	2.4
Shares and other equity[3]	–0.3	1.1	–0.5	0.2	1.1	5.9	1.8	2.7
Mutual fund shares	4.1	3.1	3.8	2.2	2.6	4.1	9.6	5.5
Insurance technical reserves	1.3	1.0	0.6	0.5	0.9	–0.1	1.2	–0.2
Other accounts receivable	1.1	–0.2	1.8	0.8	0.6	1.5	1.9	–1.0
Total financial investment	10.1	13.2	12.4	14.2	16.8	28.3	24.2	16.4

Source: OeNB (financial accounts).

[1] *Including nonprofit institutions serving households.*
[2] *Including financial derivatives.*
[3] *Other than mutual fund shares.*

Table A6

Household[1] income and savings

	2015	2016	2017	2018	2019	2020	2021	2022
	EUR billion, four-quarter moving sum							
Net disposable income	193.1	201.3	208.3	215.2	222.4	219.2	228.6	247.3
Savings	13.1	15.9	15.8	16.8	19.3	29.4	27.6	22.0
Saving ratio in %[2]	6.7	7.8	7.5	7.7	8.6	13.3	12.0	8.8

Source: Statistics Austria (national accounts broken down by sectors).

[1] *Including nonprofit institutions serving households.*
[2] *Saving ratio = savings / (disposable income + increase in accrued occupational pension benefits).*

Table A7

Financing of nonfinancial corporations

	2015	2016	2017	2018	2019	2020	2021	2022
	EUR billion, four-quarter moving sum							
Debt securities[1]	0.0	0.7	–1.9	–1.5	–1.2	8.1	–3.1	–6.4
Loans	5.7	14.1	14.4	15.6	21.2	6.8	29.2	26.9
Shares and other equity	2.5	2.8	11.9	–0.6	4.0	0.0	6.7	–3.2
Other accounts payable	4.5	5.6	3.3	7.6	–1.8	–4.4	6.1	–7.0
Total external financing	12.7	23.2	27.7	21.1	22.2	10.5	38.9	10.3

Source: OeNB (financial accounts).

[1] *Including financial derivatives.*

Table A8

Insolvency indicators

	2015	2016	2017	2018	2019	2020	2021	2022
Estimated default liabilities (opened insolvency proceedings, EUR million)	2,430	2,867	1,863	2,071	1,697	3,057	1,761	2,208
Opened insolvency proceedings (number)	3,115	3,163	3,025	2,985	3,044	1,804	2,060	2,904
Dismissed applications for insolvency proceedings (number)	2,035	2,063	2,054	1,995	1,974	1,230	974	1,871
Total insolvencies (number)	5,150	5,226	5,079	4,980	5,018	3,034	3,034	4,775

Source: Kreditschutzverband von 1870.

Table A9

Housing market indicators

	2015	2016	2017	2018	2019	2020	2021	2022
Residential property price index	*(2000=100)*							
Vienna	209.2	217.2	220.4	232.0	243.2	259.6	287.6	315.6
Austria	168.1	180.4	187.2	200.1	208.0	222.6	248.8	274.4
Austria excluding Vienna	152.9	166.7	174.9	189.8	194.8	209.4	236.2	261.9
Rent prices[1]	*(2020=100)*							
Rents of apartments, excluding utilities (as measured in the CPI)	84.5	86.4	89.9	93.3	96.0	100.0	102.0	102.8
OeNB fundamentals indicator for residential property prices[2]								
Vienna	11.4	12.4	13.9	16.4	17.7	19.1	28.1	41.0
Austria	–3.1	1.2	5.5	8.9	9.5	9.1	20.2	35.4

Source: OeNB, Vienna University of Technology (TU Wien).

[1] *Free and regulated rents.*

[2] *Deviation from fundamental price in %.*

Austrian financial intermediaries[1]

Table A10

Structual indicators

	2015	2016	2017	2018	2019	2020	2021	2022
	End of period							
Number of banks in Austria	738	672	628	597	573	543	520	493
Number of bank branches	4,096	3,926	3,775	3,639	3,521	3,134	3,438	3,297
Number of foreign subsidiaries	83	60	58	55	53	53	54	42
Number of branches abroad	207	209	215	219	229	231	187	166
Number of employees[1]	75,034	74,543	73,706	73,508	73,203	71,896	68,705	67,422

Source: OeNB.

[1] *Number of persons, including part-time employees, employees on leave or military service, excluding blue-collar workers.*

Table A11

Total assets

	2015	2016	2017	2018	2019	2020	2021	2022
	End of period, EUR million							
Total assets on an unconsolidated basis	859,165	832,267	815,275	854,582	884,964	973,817	1,024,399	1,014,401
Total assets on a consolidated basis	1,056,705	946,342	948,861	985,981	1,032,285	1,136,427	1,196,594	1,199,683
Total assets of CESEE subsidiaries	295,557	184,966	205,532	206,582	222,947	234,468	270,676	278,677

Source: OeNB.

Table A12

Sectoral distribution of domestic loans to nonbanks

	2015	2016	2017	2018	2019	2020	2021	2022
All currencies combined	*End of period, EUR million*							
Nonbanks	333,743	335,644	341,149	355,869	371,790	385,384	410,860	431,527
of which: nonfinancial corporations	*137,151*	*135,569*	*143,758*	*153,028*	*162,905*	*169,795*	*184,676*	*201,357*
households[1]	*146,444*	*152,516*	*156,386*	*161,947*	*168,824*	*174,494*	*184,214*	*190,868*
general government	*28,034*	*27,681*	*24,443*	*24,562*	*23,576*	*24,718*	*25,376*	*22,841*
other financial intermediaries	*22,114*	*19,878*	*16,562*	*16,332*	*16,485*	*16,330*	*16,541*	*16,407*
Foreign currency								
Nonbanks	33,948	30,088	22,182	20,563	19,619	16,528	14,862	13,411
of which: nonfinancial corporations	*5,291*	*4,296*	*3,397*	*3,538*	*3,321*	*2,628*	*2,497*	*2,376*
households[1]	*24,423*	*21,224*	*16,486*	*14,993*	*13,590*	*11,581*	*10,057*	*8,900*
general government	*2,861*	*2,623*	*943*	*517*	*471*	*425*	*360*	*320*
other financial intermediaries	*1,373*	*1,945*	*1,356*	*1,516*	*2,237*	*1,891*	*1,946*	*1,814*

Source: OeNB.

Note: Figures are based on monetary statistics.

[1] *Including nonprofit institutions serving households.*

[1] *The OeNB's financial indicators relate to all banks operating in Austria. For this reason, some of the figures presented here may deviate from the Financial Soundness Indicators published by the IMF.*

Table A13

Loan quality[1]

	2015	2016	2017	2018	2019	2020	2021	2022
	End of period, %							
Nonperforming loans in % of total loans (Austria[2])	4.0	3.2	2.5	2.0	1.7	1.5	1.4	1.3
Nonperforming loans in % of total loans (consolidated)	6.5	5.2	3.4	2.6	2.2	2.0	1.8	1.7
Nonperforming loans in % of total loans (Austrian banks' CESEE subsidiaries)	11.5	8.6	4.5	3.2	2.4	2.4	2.0	1.8
Coverage ratio[3] (Austria[2])	47	59	60	62	61	68	70	74
Coverage ratio[4] (consolidated)	54	53	52	51	49	49	48	46
Coverage ratio[4] (Austrian banks' CESEE subsidiaries)	59	67	61	64	67	67	64	64

Source: OeNB.

[1] *As from 2017, data are based on Financial Reporting (FINREP) including total loans and advances. Data before 2017 only include loans to households and corporations.*
[2] *Austrian banks' domestic business.*
[3] *Total loan loss provisions in % of nonperforming loans.*
[4] *Loan loss provisions on nonperforming loans in % of nonperforming loans.*

Table A14

Exposure to CESEE

	2015	2016	2017	2018	2019	2020	2021	2022
	End of period, EUR million							
Total exposure according to the BIS[1]	186,397	193,273	210,616	217,078	233,275	243,569	278,902	293,160
Total indirect lending to nonbanks[2]	176,728	108,738	118,268	120,816	133,169	133,437	150,945	152,862
Total direct lending[3]	40,866	32,976	28,507	27,526	23,992	25,656	24,125	24,734
Foreign currency loans of Austrian banks' CESEE subsidiaries	69,317	32,576	31,027	29,836	29,766	29,376	30,362	32,035

Source: OeNB.

[1] *As from mid-2017, comparability of data with earlier figures is limited due to several methodological adjustments in data collection.*
[2] *Lending (net lending after risk provisions) to nonbanks by all fully consolidated bank subsidiaries in CESEE.*
[3] *Cross-border lending to nonbanks and nonfinancial institutions in CESEE according to monetary statistics.*

Table A15

Profitability on a consolidated basis

	2015	2016	2017	2018	2019	2020	2021	2022
	End of period, EUR million							
Operating income	28,064	22,408	22,837	24,023	24,997	24,750	25,805	31,605
of which: net interest income	*18,336*	*14,604*	*14,536*	*15,210*	*15,589*	*15,458*	*15,659*	*19,299*
fee and commission income	*7,730*	*6,562*	*6,885*	*7,097*	*7,226*	*7,314*	*8,042*	*10,097*
Operating expenses	17,612	16,687	14,752	15,661	16,733	16,530	16,783	18,736
of which: staff costs	*8,959*	*8,774*	*8,415*	*8,602*	*8,740*	*8,461*	*8,724*	*8,873*
other administrative expenses	*6,830*	*5,820*	*5,571*	*5,630*	*5,673*	*5,835*	*5,959*	*6,425*
Operating profit/loss	10,452	5,723	8,087	8,361	8,264	8,220	9,022	12,869
Risk provisioning	4,655	1,192	1,049	438	960	3,708	1,412	2,660
Net profit after taxes	5,244	4,979	6,577	6,916	6,713	3,668	6,085	10,156
	%							
Return on average (total) assets[1]	0.5	0.6	0.8	0.8	0.7	0.4	0.6	0.9
Cost-to-income ratio	63	74	65	65	67	67	65	59
Risk provisioning to operating profit	45	21	13	5	12	45	16	21

Source: OeNB.

[1] *Based on profits after tax, but before minority interests.*

Table A16

Profitability of Austrian banks' CESEE subsidiaries

	2015	2016	2017	2018	2019	2020	2021	2022
	End of period, EUR million							
Operating income	12,261	7,753	7,914	7,926	8,442	8,243	8,889	12,793
of which: net interest income	*8,431*	*5,135*	*5,304*	*5,467*	*5,827*	*5,651*	*5,906*	*7,687*
fee and commission income	*3,358*	*2,184*	*2,315*	*2,241*	*2,393*	*2,327*	*2,701*	*4,463*
Operating expenses	6,264	4,084	4,216	4,081	4,390	4,412	4,616	5,110
of which: staff costs	*2,896*	*1,956*	*2,052*	*2,004*	*2,126*	*2,059*	*2,181*	*2,475*
other administrative expenses	*2,752*	*1,726*	*1,753*	*1,672*	*1,652*	*1,746*	*1,816*	*2,009*
Operating profit/loss	5,998	3,668	3,698	3,845	4,053	3,831	4,273	7,683
Risk provisioning	3,025	720	340	221	472	1,326	482	975
Net profit after taxes	2,050	2,354	2,627	2,913	2,837	1,941	2,996	5,218
	%							
Return on average (total) assets	0.7	1.3	1.3	1.4	1.3	0.8	1.2	1.9
Cost-to-income ratio	51	53	53	51	52	54	52	40
Risk provisioning to operating profit	50	20	9	6	12	35	11	13

Source: OeNB.

Table A17

Solvency on a consolidated basis

	2015	2016	2017	2018	2019	2020	2021	2022
	End of period, EUR million							
Risk-weighted assets	537,447	442,870	449,451	465,623	486,507	482,394	514,690	536,907
	%							
Total capital adequacy ratio	16.3	18.2	18.9	18.6	18.7	19.5	19.3	19.2
Tier 1 capital ratio	12.9	14.9	15.9	16.0	16.3	17.2	17.1	17.3
Common equity tier 1 (CET1) ratio	12.8	14.9	15.6	15.4	15.6	16.1	16.0	16.3
Leverage ratio (transitional)	x	6.9	7.3	7.5	7.6	7.4	7.7	7.9

Source: OeNB.

Table A18

Market indicators of selected Austrian financial institutions

	2017	2018	2019	2020	2021	2022	Mar. 23
Share prices	*% of end-2017 prices, end of period*						
Erste Group Bank	100	80	93	69	115	83	84
BAWAG P.S.K.	100	81	91	85	122	112	100
Raiffeisen Bank International	100	74	74	55	86	50	47
EURO STOXX Banks	100	67	74	57	77	73	78
Uniqa	100	89	103	73	91	79	88
Vienna Insurance Group	100	79	99	81	97	86	96
EURO STOXX Insurance	100	91	112	97	113	114	117
Relative valuation: share price-to-book value ratio	*%, end of period*						
Erste Group Bank	115	89	97	69	106	71	73
BAWAG P.S.K.	124	96	101	86	123	117	105
Raiffeisen Bank International	100	69	62	46	66	31	29
EURO STOXX Banks	83	56	61	49	66	52	65
Uniqa	86	81	83	57	75	106	118
Vienna Insurance Group	71	57	64	52	58	68	75
EURO STOXX Insurance	105	92	101	82	96	134	157

Source: Bloomberg.

Table A19

Key indicators of Austrian insurance companies

	2015	2016	2017	2018	2019	2020	2021	2022
	End of period, EUR million							
Business and profitability								
Premiums	17,342	16,920	16,975	17,178	17,555	19,082	19,766	20,820
Expenses for claims and insurance benefits	15,514	14,751	14,727	14,088	15,016	15,764	16,545	16,940
Underwriting results	475	560	581	507	618	554	766	584
Profit from investments	3,216	3,051	2,815	2,528	3,118	1,771	3,082	2,180
Profit from ordinary activities	1,354	1,414	1,244	1,168	1,693	744	1,942	967
Total assets	114,495	114,707	137,280	133,082	138,411	141,081	145,351	127,691
Investments								
Currency and deposits	x	3,247	2,749	3,402	2,732	2,681	3,250	3,361
Debt securities	x	55,006	55,616	53,830	54,679	54,332	50,007	38,884
of which: issued by domestic residents	*x*	*16,760*	*16,157*	*15,342*	*14,832*	*13,942*	*11,749*	*8,320*
issued by euro area residents (other than domestic)	*x*	*27,101*	*27,442*	*27,001*	*28,269*	*28,037*	*26,237*	*20,648*
issued by non-euro area residents	*x*	*11,145*	*12,017*	*11,487*	*11,577*	*12,352*	*12,021*	*9,916*
Shares and other equity	x	22,474	21,258	19,677	19,413	21,178	25,514	26,484
Investment fund shares (including money market funds)	x	33,981	34,877	33,414	37,498	37,702	40,280	33,798
Insurance techincal reserves and related claims	x	3,568	3,128	2,683	2,713	2,994	3,445	3,126
Risk capacity[1] (median solvency capital requirement), %	375	x	276	255	238	220	229	244

Source: FMA, OeNB.

[1] *A new reporting system based on Solvency II was introduced in 2017; therefore, some indicators cannot be compared with historical values.*

Table A20

Assets held by Austrian mutual funds and information on asset structure

	2015	2016	2017	2018	2019	2020	2021	2022
	End of period, EUR million							
Domestic securities	52,970	54,383	54,824	52,480	54,114	56,272	62,001	55,163
of which: debt securities	*13,609*	*13,278*	*11,879*	*11,313*	*10,759*	*10,563*	*9,857*	*8,868*
stocks and other equity securities	*3,530*	*4,284*	*4,678*	*3,607*	*4,108*	*3,669*	*4,486*	*3,529*
Foreign securities	114,833	120,330	128,836	121,038	140,616	146,178	168,714	144,906
of which: debt securities	*70,326*	*69,911*	*70,353*	*67,956*	*72,949*	*74,353*	*77,261*	*66,841*
stocks and other equity securities	*18,521*	*20,145*	*22,924*	*20,747*	*27,983*	*31,511*	*44,394*	*38,198*
Net asset value	167,802	174,713	183,661	173,518	194,730	202,450	230,715	200,069
of which: retail funds	*91,626*	*94,113*	*97,095*	*89,923*	*101,536*	*105,467*	*124,005*	*107,699*
institutional funds	*76,177*	*80,600*	*86,572*	*83,600*	*93,194*	*96,983*	*106,711*	*92,370*
Consolidated net asset value	143,249	148,684	156,179	148,930	168,013	175,239	198,201	173,356
Number of funds	2,077	2,029	2,020	2,017	1,935	1,953	1,970	1,978
Number of fund management companies	30	30	30	24	21	21	22	22

Source: OeNB.

Table A21

Selected assets held by Austrian pension funds and information on asset structure

	2015	2016	2017	2018	2019	2020	2021	2022
	End of period, EUR million							
Total assets	19,646	20,882	22,234	21,494	24,705	25,391	27,334	24,663
Currency, deposits and loans	x	x	x	x	466	557	559	440
Investment fund shares	18,656	19,796	21,198	20,379	23,507	24,170	26,088	23,477
of which: equity funds	*x*	*x*	*x*	*x*	*5,961*	*5,900*	*6,979*	*5,454*
bond funds	*x*	*x*	*x*	*x*	*8,232*	*7,404*	*7,477*	*6,661*
mixed funds					*7,565*	*9,014*	*9,476*	*8,774*
real estate funds	*x*	*x*	*x*	*x*	*832*	*871*	*994*	*1,056*
other funds, including money market and hedge funds	*x*	*x*	*x*	*x*	*917*	*981*	*1,163*	*1,531*
Defined benefit schemes	x	x	x	x	5,111	4,869	5,026	4,216
Defined contribution schemes	x	x	x	x	19,295	20,193	21,870	20,069

Source: OeNB

Table A22

Transactions and system disturbances in payment and securities settlement systems

	2015	2016	2017	2018	2019	2020	2021	2022
Large-value payment system (domestic, operated by the OeNB)	*Number of transactions in million, value of transactions in EUR billion*							
Number	1	1	1	1	1	1	1	1
Value	6,381	4,316	3,690	1,536[1]	1,412	1,651	2,107	20,773[2]
System disturbances	1	4	0	3	0	0	1	1
Securities settlement systems								
Number	2	2	2	2	2	2	2	2
Value	315	335	701[3]	658	639	700	893	1,015
System disturbances	3	3	0	3	1	0	5	4
Card payment systems								
Number	901	963	1,061	1,178	1,299	1,350	1,494	1,695
Value	97	101	108	116	125	115	123	138
System disturbances	2	4	1	2	1	3	1	1
Participation in international payment systems								
Number	144	166	191	217	242	290	334	372
Value	2,420	3,029	3,242	3,831	3,304	2,252	2,104	2,434
System disturbances	0	0	0	0	0	0	0	2

Source: OeNB.

[1] *Liquidity transfers from participants' domestic accounts to their own TARGET2 accounts are no longer included under domestic transactions.*
[2] *Increase in processed values due to positive interest rates for deposit facilities.*
[3] *Free-of-payment (FOP) transactions were first included in the value of transactions in 2017.*