DEUTSCHE BUNDESBANK
EUROSYSTEM

Annual Report
2022

From left to right: Joachim Wuermeling, Sabine Mauderer, Joachim Nagel, Claudia M. Buch, Burkhard Balz

Members of the Executive Board of the Deutsche Bundesbank

Dr Joachim Nagel
President of the Deutsche Bundesbank

Professor Claudia M. Buch
Vice-President of the Deutsche Bundesbank

Burkhard Balz

Dr Sabine Mauderer

Professor Joachim Wuermeling

We mourn the loss
of the following members of our staff

Ute Maria Feulner-Rink	17 January 2022
Birgit Otten	9 February 2022
Harald Lang	22 March 2022
Karsten Schiffmann	28 March 2022
Josef Link	5 April 2022
Hanskarl Paul März	7 April 2022
Alfons Anton Meier	7 April 2022
Markus Altmann	10 April 2022
Dirk Paschellis	26 April 2022
Manuela Strangl	26 April 2022
Herbert Koch	22 May 2022
Mirjam Steinmüller	6 June 2022
Ingo Ehrhardt	20 June 2022
Florian Speth	4 July 2022
Jochen Wege	10 July 2022
Michael Giere	12 July 2022
Holger Blaschta	14 August 2022
Frank Albus	30 September 2022
Leonhard Gammel	8 October 2022
Rita Mutscher	24 October 2022
Otmar Langethal	11 November 2022
Susanne Herzog	29 November 2022
Manuela Holst	7 December 2022

We also remember the retired staff members
of the Bank who passed away in 2022.

We will honour their memory.

DEUTSCHE BUNDESBANK

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p	Provisional
r	Revised
e	Estimated
pe	Partly estimated
…	Figure available at a later date
.	Figure unknown, not to be published or not meaningful
0	Less than 0.5 but more than nil
–	Nil

Discrepancies in the totals are due to rounding.

Dear Reader

The year 2022 already began under a cloud: the pandemic was still having a major impact on public life. Supply bottlenecks were giving the economy a rough time. Inflation in the euro area rose to 5% – and the voices arguing that this was transitory started to grow quieter. That would normally have been more than a year's worth of challenges.

But then came the 24th of February. I was horrified and dismayed by Russia's war of aggression against Ukraine. It was as if a time machine had launched us back into the past, to a time thought to be long overcome. In the heart of Europe, people have been fleeing from missiles, losing their possessions, and mourning their loved ones. It is something that we neither want to, nor are able to, grow accustomed to. I know that many in Germany, including a good number of our colleagues, are actively working to support the people in Ukraine and those who have fled from there. My special thanks go out to these helpers.

The war and the ensuing energy crisis made it increasingly clear that price pressures were not going to abate. On the contrary: inflation surged anew, at times reaching double digits. Annual average inflation in Germany reached one of its highest levels in the history of the Federal Republic of Germany. Inflation hits those on low incomes the hardest, as they spend a relatively large portion of their income on the necessities of life, such as heating, electricity and food – those things for which prices rose particularly sharply in 2022. Meanwhile, inflation has become increasingly broadly based, making it all the more persistent.

Monetary policy responded to the high inflation and the changed outlook for prices. In July 2022, the Governing Council of the ECB raised its policy rates for the first time in over ten years, with three further substantial rate hikes following over the remainder of the year. Never since the introduction of the euro had policy rates been raised so sharply within the space of a year. The Governing Council thus took decisive action – and will continue to do so, as our job is not yet done. We need to make sure that the tide of inflation is indeed ebbing. I am confident that we will succeed at this and achieve our medium-term target of an inflation rate of 2% in a timely manner.

On behalf of the entire Executive Board and also in a personal capacity, I would like to warmly thank all our staff for their magnificent efforts in 2022, a year overshadowed by war and crisis. I was very happy to return to the Bundesbank, and my superb colleagues made it easy for me to start off on a good footing. Together, we want to continue living up to the trust people place in us. They can rely on the Bundesbank to advocate for stable money in Germany and Europe.

Frankfurt am Main, February 2023

Sincerely yours
Joachim Nagel

Dr Joachim Nagel
President of the Deutsche Bundesbank

At a glance

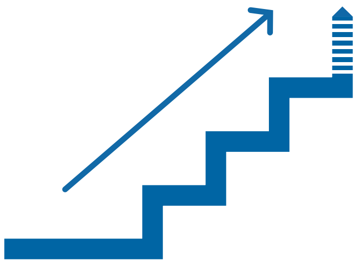
+1.9%

Economic growth

High inflation, supply bottlenecks and energy supply risks weighed on German economic activity. Real growth of gross domestic product (GDP), at a calendar-adjusted 1.9%, was considerably weaker than had still been expected at the beginning of the year. Economic output in Germany is likely to have contracted somewhat in the 2022-23 winter half-year, however.

Consumer prices

Consumer prices rose at their fastest pace in 70 years. Measured in terms of the Harmonised Index of Consumer Prices (HICP), the annual average inflation rate in Germany was 8.7%. In October, the monthly HICP rate even hit 11.6%.



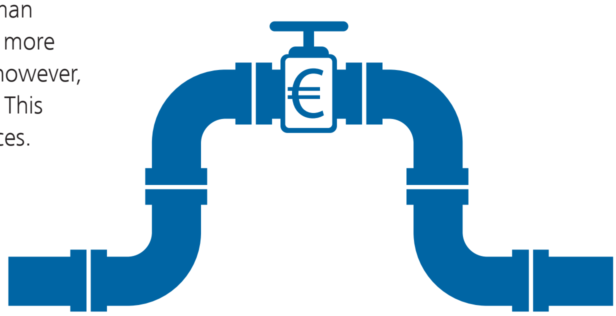
Interest rate increase

The Eurosystem closed the chapter on negative policy rates in the summer. In several steps, the deposit facility rate, currently the most significant policy rate, was increased from -0.5% to 2%, thereby reaching its end-2008 level in December.

Gas price

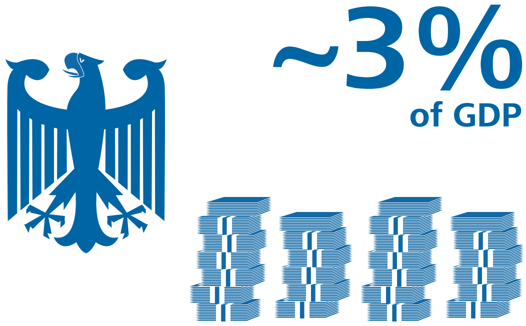
Energy prices were the main driver of high inflation. German households spent, on an annual average, nearly one-half more on gas than one year ago. Since peaking in the summer, however, wholesale gas prices have gone back down considerably. This could have a delayed dampening effect on consumer prices.

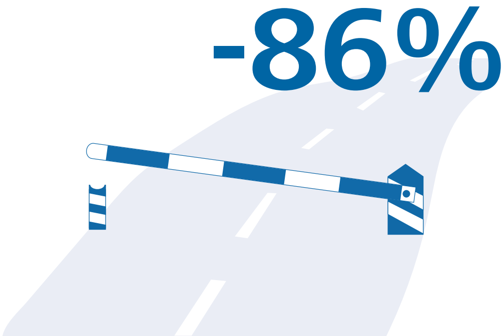
+47.3%



Government support

Temporary crisis-related fiscal measures amounting to around 3% of GDP increased the government deficit in 2022 to an extent similar to 2021. Although coronavirus assistance fell significantly, extensive new support measures were introduced in response to the energy crisis and high inflation.



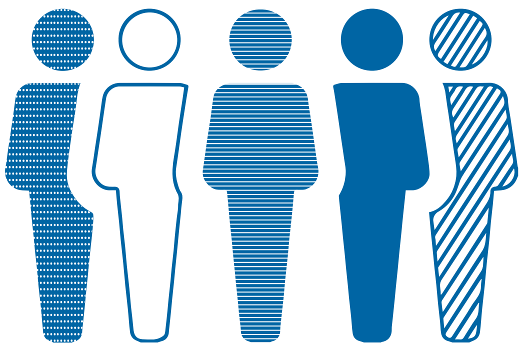


Sanctions

The economic consequences of the Russian war of aggression against Ukraine are also manifesting themselves in inter-national payment flows. In the second half of 2022, the total value of direct transactions between Germany and Russia fell by 86% on the year. Exceptions to the sanctions include, in particular, payments for natural gas.

Diversity

The Bundesbank is striving to do even more to promote diversity amongst its staff, as diversity in its teams supports the Bundes-bank's efforts to innovate. In May 2022, it reaffirmed its commitment to this objective by signing an equality, diversity and inclusion charter.



Bundesbank round-up

Economic activity and price developments

The year 2022 was characterised by remarkably high inflation rates in many regions of the world. Inflation in the advanced economies was stronger than it had been for the past 40 years, with prices in these countries having already risen sharply in the second half of 2021.

This was largely due to the unexpectedly rapid recovery of many economies following the pandemic-induced slump, supported by expansionary monetary and fiscal policy worldwide. The rapid rebound in demand initially pushed up commodity prices, in particular. In addition, pandemic-related disruptions and high demand for goods put a strain on international supply chains. This, too, contributed to accelerating inflation rates. Even before Russia launched its war of aggression against Ukraine in violation of international law in February 2022, the prices of energy commodities, especially gas, had increased considerably.

After the war broke out, the rise in energy prices initially accelerated further. All these factors were reflected in consumer price dynamics, evoking parallels with the period of high inflation in the 1970s. Indeed, the burden imposed by high energy prices on the global economy is likely to have been about as high last year as it was in the wake of the oil price shock in 1973.[1] Overall, consumer prices in the industrial countries rose by 7.8% on average in 2022, compared with 3.5% the year before.

The sharp rise in energy prices also drove up production costs. Moreover, wage growth accelerated in many industrial countries, partly owing to a pronounced labour shortage. Inflation became increasingly broad-based in the wake of these developments. In the advanced economies, core inflation, measured as the year-on-year rate of the consumer price index (CPI) excluding energy and food, amounted to 5.2% on an average of 2022.

Accelerating cost and price increases were one of the factors significantly restraining global economic growth last year. High inflation increasingly held back private consumption. Monetary policy normalisation, which was introduced against the backdrop of high inflation in most advanced economies, also dampened economic activity.

In the context of Russia’s ongoing war against Ukraine, concerns arose about the security of the energy supply in Europe, especially relating to natural gas.

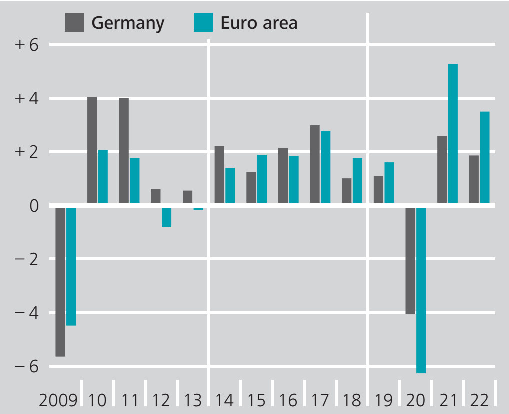
The COVID-19 pandemic, too, continued to curb global economic growth. Almost all countries lifted the majority of their protective measures following fairly successful vaccination campaigns. China maintained a zero-COVID policy until December 2022, however, leading to repeated business closures there, which also hampered international supply chains. Overall, the International Monetary Fund (IMF) expects the global economy to have expanded by 3.4% last year, compared with 6.2% in 2021. Global growth is expected to decline further to 2.9% in 2023, with risks tilted to the downside.

The war in Ukraine, high inflation and supply bottlenecks also put pressure on the German economy last year. The pandemic in China and the effects of the war imposed restrictions or major delays on the availability of some industrial input products in the first half of 2022, which weighed on German industrial production.

1 See here and in the following Deutsche Bundesbank, Global and European setting, Monthly Report, November 2022, pp. 13-14.

Aggregate output

Year-on-year percentage change in GDP, price, seasonally and calendar adjusted



Sources: Federal Statistical Office and Eurostat.
Deutsche Bundesbank

At the same time, consumer sentiment deteriorated massively in the face of record inflation and geopolitical uncertainties. However, this was counteracted by the lifting of most of the pandemic containment measures in spring 2022; the easing of restrictions boosted activity in the services sectors, in particular, which had been hit especially hard by the protective measures. It was partly because private consumption therefore remained comparatively robust that aggregate output was higher than expected in the summer. Economic output exceeded its pre-pandemic level again for the first time.

Towards the end of the year, however, the positive effects from the lifting of the COVID-19 containment measures tailed off. Uncertainty about the energy supply and its costs weighed heavily on enterprises, even if a gas shortage was successfully averted. Moreover, the increasing slowdown in the global economy dampened exports. In calendar-adjusted terms, economic output in Germany increased by 1.9% overall in 2022. However, it will probably decline in the 2022-23 winter half-year (October-March).

The average inflation rate in Germany in 2022 was the highest it has been since 1974.[2] Government relief measures such as the fuel rebate and the €9 travel ticket only reduced inflationary pressures for a short while. From September 2022 onwards, consumer prices as measured by the year-on-year change in the Harmonised Index of Consumer Prices (HICP) temporarily rose at double-digit rates. Inflation subsided to 9.6% towards the end of the year from 11.6% in October, partly on account of immediate assistance for gas and heating bills.

Although energy prices were the main driver of the high price pressures, inflation became significantly more broadly based. This can be seen from core inflation as measured by the year-on-year rate of the HICP excluding energy and food, which came to 5.4% in Germany in December 2022. Overall, consumer prices as measured by the HICP climbed by 8.7% in Germany last year.

At 3.5%, economic output in the euro area rose sharply in 2022. Like in Germany, much of the economic stimulus stemmed from the recovery in accommodation and food services and the associated sectors after most of the COVID-19 containment measures were lifted.

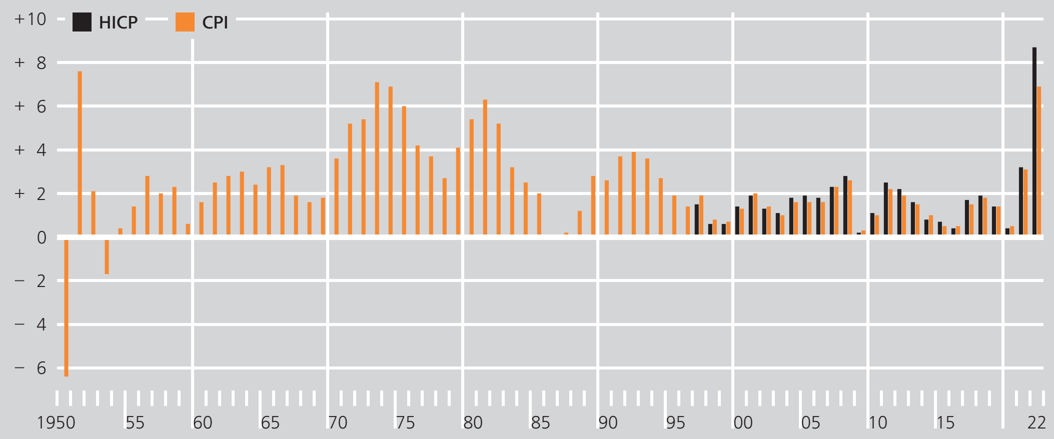
However, high inflation held back private consumption here, too. The energy crisis not only pushed up retail prices for gas and electricity, along with enterprises' production costs, but also made production planning in energy-intensive industrial sectors more difficult. Industry, especially motor vehicle production, benefited from the slow easing of supply chain problems, however.

From the middle of the year onwards, the aforementioned negative factors became increasingly apparent and economic growth declined considerably. The euro area economy is expected to stagnate in the winter half-year.

2 The inflation data from this period are based on the national CPI. European monetary policy draws on the HICP, which is compiled in a standardised manner throughout Europe and has been calculated for Germany by the Federal Statistical Office since 1997.

Consumer prices in Germany since 1950*

Year-on-year percentage change



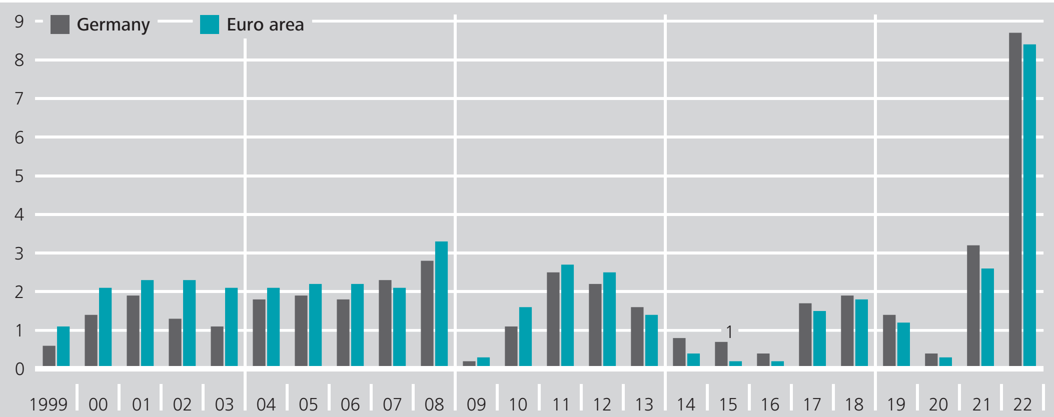
Source: Federal Statistical Office. * Consumer Price Index (CPI) only for western Germany until 1994.
Deutsche Bundesbank

Euro area consumer prices rose more sharply in 2022 than they had done since the introduction of the euro. Alongside soaring energy prices, high demand for transport, travel and other recreational services drove up inflation after most of the COVID-19 containment measures were lifted. Rising fertiliser prices and the dry summer weather also led to increasing price pressures for unprocessed food. The steep rise in food commodity prices around the world made processed foods such as dairy, fat and cereal products considerably more expensive.

Consumer price inflation as measured by the year-on-year rate of the HICP accelerated to 10.6% in October 2022. The rate receded somewhat towards the end of the year, coming down to 9.2% in December. Inflation was also increasingly broadly based. Core inflation stood at 5.2% in the last month of the year. The euro area headline inflation rate averaged 8.4% in 2022.

Consumer prices*

Year-on-year percentage change



Sources: Federal Statistical Office and Eurostat. * HICP. **1** Values for 2015 biased upwards by an ad hoc revision to German HICP in 2019.
Deutsche Bundesbank

Monetary policy

Monetary policy in the euro area was still extremely accommodative at the start of 2022. This was mainly because the increases in inflation observed in 2021 were thought to be transitory.

However, the further rise in inflation in the course of 2022 also increasingly pushed up the medium-term price outlook. This prompted the Governing Council of the ECB to adjust its monetary policy in order to bring inflation back down to the Eurosystem's medium-term target in a timely and sustainable manner. As already decided in December 2021, net asset purchases under the pandemic emergency purchase programme (PEPP) were discontinued in March 2022.[3]

Additionally, the Governing Council of the ECB decided in March to scale back net purchases under the asset purchase programme (APP) more rapidly than had been planned in December. In June, it decided to discontinue net asset purchases under the APP as of 1 July 2022 and signalled that the first interest rate hike would soon take place.

In July, the Governing Council decided to raise the three key interest rates by 0.5 percentage point. The deposit facility rate, which is crucial to the monetary policy stance in an environment of high excess liquidity, rose to 0%. This interest rate hike – the first in eleven years – saw the Eurosystem close the chapter on negative deposit rates. The interest rate on main refinancing operations now stood at 0.5% and the interest rate on the marginal lending facility at 0.75%.

In view of the persistently high projected inflation rates, the Governing Council of the ECB raised the key interest rates again later in the year at each of its monetary policy meetings: by 0.75 percentage point in September and again in October and by 0.5 percentage point in December. The rate on the deposit facility stood at 2% at the end of the year, having last been at this level at the end of 2008. The interest rates on main refinancing operations and the marginal lending facility increased to 2.5% and 2.75%, respectively.

Based on another substantial upward revision of the inflation outlook in December, the Governing Council expected to raise the key interest rates further in 2023. It judged that interest rates would still have to rise significantly at a steady pace.

In addition, the Governing Council of the ECB decided at the October meeting to adjust the interest rates applicable to the third series of targeted longer-term refinancing operations (TLTRO III) and other conditions for these operations to ensure consistency with the monetary policy normalisation process. This monetary policy instrument was originally intended to help preserve favourable lending conditions and ensure the smooth transmission of monetary policy. The conditions of the TLTRO were made more favourable on several occasions during the pandemic. Given that inflation risks now predominate, the adjustment will help to ensure a better transmission of policy rate hikes into banks' credit conditions.

Besides the Eurosystem's interest rate conditions, its holdings of securities for monetary policy purposes have an impact on market interest rates and thus influence the monetary policy stance. In December, the Governing Council decided that it would stop fully replacing maturing bonds under the APP as of March 2023, thus reversing another significant element of the monetary policy easing measures introduced in the past years.

The Eurosystem's decision to move away from an accommodative monetary policy is dampening aggregate demand. This is not an undesirable side effect, but rather part of the monetary

3 However, the Governing Council intends to fully reinvest maturing bonds under the PEPP until at least the end of 2024.

policy transmission mechanism aimed at curbing inflation and steering it back towards the 2% target.

The Eurosystem's monetary policy response must not be too weak because the longer the period of high inflation persists, the more at risk longer-term inflation expectations are of becoming unanchored.

Longer-term inflation expectations are considered anchored if they are close to the central bank's inflation target and hardly respond to short-term inflation fluctuations. According to the ECB Survey of Professional Forecasters (SPF), in 2022, longer-term inflation expectations gradually moved further away from the inflation target, reaching a level of 2.2%. In addition, their sensitivity to short-term fluctuations increased markedly. This combination showed a worrying increase in the risk of unanchoring.

Households' medium-term inflation expectations also rose markedly in the course of 2022.[4] This situation eased somewhat towards the end of the year. While households' medium-term inflation expectations fell in November, the SPF survey conducted in January 2023 showed a decline in longer-term inflation expectations from 2.2% to 2.1%. In addition, these expectations again showed a somewhat weaker response to short-term fluctuations. However, this must not lull monetary policymakers into a false sense of security. First, longer-term inflation expectations are still reacting to new inflation data, albeit somewhat more weakly, and second, uncertainty remains very high. The positive developments can quickly go into reverse. And lastly, the reduced risk of unanchoring is also probably due to the fact that the Eurosystem's tightening of its monetary policy stance has itself helped to make the inflation target more credible. If the Governing Council of the ECB were to relax the monetary policy stance again, the risk of unanchoring could increase once more. Unanchored inflation expectations could cause the high inflation rates to become entrenched. The central bank would then have to respond more strongly in order to restore price stability, meaning that the economic costs of combating inflation would be significantly higher. The Governing Council is therefore prepared to take all necessary measures to prevent such a scenario.

The move away from monetary policy easing is, however, also reflected on central banks' balance sheets. While income from their holdings of predominantly long-term, low interest-bearing bonds remains broadly unchanged, expenditure is rising. As the key interest rates rise, central banks are now also once more paying interest on deposits held at their institutions by commercial banks – deposits on which they had generated income during the period of negative interest rates. As one of the side effects of the reversal of monetary policy interest rates, a burden is therefore being placed on the Bundesbank's profitability and, ultimately, on public finances (see the box on pp. 16 f.).

In June 2022, the Governing Council of the ECB stated that the pandemic had left lasting vulnerabilities in the euro area economy, which contributed to the uneven transmission of the normalisation of monetary policy. It therefore decided that it would apply flexibility in reinvesting redemptions coming due in the PEPP portfolio, with a view to preserving the functioning of the monetary policy transmission mechanism.

In July 2022, the Governing Council of the ECB approved an additional instrument to safeguard monetary policy transmission in the context of normalising monetary policy. Called the Transmission Protection Instrument (TPI), it can be

4 See European Central Bank, Consumer Expectations Survey, https://www.ecb.europa.eu/stats/ecb_surveys/consumer_exp_survey/html/index.en.html
The Bundesbank's surveys of households and enterprises in Germany also show similar results; see https://www.bundesbank.de/en/bundesbank/research/survey-on-consumer-expectations/survey-on-consumer-expectations-848330 and https://www.bundesbank.de/en/bundesbank/research/survey-on-firms/survey-on-the-expectations-of-firms-855892

Interest rate risk on the central bank balance sheet

Following the financial crisis, the rates of inflation in all G7 countries fell to unusually low levels in historical terms. In order to maintain price stability, central banks significantly lowered their key interest rates and made large-scale bond purchases. Both short-term and longer-term market interest rates fell as a result, boosting economic activity and helping central banks to achieve their objective of price stability.

Between 2009 and 2022, the Eurosystem purchased assets under various programmes. These included, in particular, the asset purchase programme (APP) adopted in 2015 and the pandemic emergency purchase programme (PEPP) launched in 2020. The holdings of assets purchased by the Eurosystem for monetary policy purposes amounted to more than €4.9 trillion as at 31 December 2022.

As the balance sheets have expanded, the financial risks they contain have also risen considerably. The Bundesbank already highlighted these risks at an early stage.[1] While risk considerations feed into monetary policy decision-making, certain risks cannot be avoided in fulfilling the price stability mandate. In the current environment, these include materialising interest rate risks, in particular.

Prior to the asset purchases for monetary policy purposes, the Bundesbank's balance sheet contained virtually no euro interest rate risk. The vast majority of the interest-bearing items on the assets side of the balance sheet had short maturities and were balanced out, in particular, by the non-interest-bearing banknotes in circulation. However, the asset purchases for monetary policy purposes have resulted in a large volume of fixed interest items with longer maturities on the assets side. At the same time, liabilities with short maturities, i.e. interest-bearing deposits of banks and other depositors, formed as balance sheet counterparts. Longer-term assets grew from €285 billion in 2015 to €1,270 billion at the end of 2022. Around 70% of these have short-term interest-bearing deposits as counterparts.

This divergence in maturities results in an open interest rate position and thus an interest rate risk. This open interest rate position amounted to €887 billion at the end of 2022, having widened by €393 billion (+80%) in the last three years alone on the back of pandemic-related asset purchases.

Changes in euro interest rates affect the profit and loss account via this item in particular. If interest rates rise, the interest rate paid by the central bank on short-term deposits rises quickly, while the interest payable on long-term assets increases only very slowly as reinvestments are made. The Bundesbank therefore pays higher interest rates on the short-term deposits placed with it, while the income it receives from its asset holdings rises only slowly at best.

Owing to the high rate of inflation and the increases in key interest rates that have already been necessary as a result, plus any

1 See Deutsche Bundesbank, Management of financial risks at the Bundesbank, Annual Report 2010, p. 141; Deutsche Bundesbank, Management of financial risks, Annual Report 2012, pp. 127 f.; Deutsche Bundesbank, Annual Report 2016, p. 73; Deutsche Bundesbank, Annual Report 2017, p. 63; Deutsche Bundesbank, Annual Report 2018, p. 61; Deutsche Bundesbank, Annual Report 2019, p. 62; Deutsche Bundesbank, Annual Report 2020, p. 66; Deutsche Bundesbank, The development of government interest expenditure in Germany and other euro-area countries, Monthly Report, July 2017, pp. 33 ff.; and Deutsche Bundesbank, Central banks' bond purchases affect public finances similarly to increased short-term financing, Annual Report 2021, pp. 24 f.

additional increases that may become necessary in future, these interest rate risks are now materialising. While the interest income generated by APP and PEPP holdings will remain low in future, the interest expenditure incurred by short-term deposits will grow rapidly as interest rates rise. Therefore, from today's standpoint, the burdens in the Bundesbank's profit and loss account in the coming years are likely to be considerable.

Against the backdrop of rising financial risks, the Bundesbank has taken precautionary measures. In order to cushion potential losses, it has been gradually increasing its risk provisions since as early as 2010. Risk provisioning was also the reason why the Bundesbank did not distribute profits for the 2020 and 2021 financial years. To offset the loss recorded in the 2022 annual accounts, a withdrawal has been made from the risk provisions. Following this withdrawal, the risk provisions amount to a total of €19 billion.

The magnitude of future burdens will depend on various factors, the development of which is subject to a high degree of uncertainty. These include future changes in key interest rates, in the size and structure of the Bundesbank's balance sheet and in its other income. Against this background, the magnitude and duration of potential future burdens varies greatly with the assumptions made in each case. The outlook for earnings is therefore highly uncertain. In the coming years, the burdens may well exceed the risk provisions that have been set aside. In this case, the Bundesbank would report a loss carryforward. Future profits would then have to be used to reduce the loss carryforward.

The Bundesbank is committed to its primary objective of maintaining price stability. Given this objective, the actions and the balance sheet of a central bank cannot be compared to the actions or balance sheet of a private credit institution. The Eurosystem and the Bundesbank must do everything necessary to ensure price stability, even if this puts a strain on their own profitability.

activated to counter unwarranted, disorderly market dynamics. This is conditional on the Governing Council's assessment that these market dynamics pose a serious threat to the transmission of monetary policy across the euro area, thus jeopardising price stability. Before activating the TPI, the Governing Council will conduct a comprehensive assessment that also takes into account the assessments of other international institutions.

Fiscal policy

General government is, in principle, an important stabilising factor during a crisis. German fiscal policy continued to support economic developments last year. The volume of pandemic-related stabilisation measures decreased considerably. However, against the backdrop of the energy crisis and high inflation, legislators approved new relief for households and enterprises. As a whole, all the temporary support measures increased the deficit by around 3% of GDP in 2022. This rise was similar in magnitude to 2021 (and somewhat greater than in 2020, the first year of the COVID-19 pandemic).

Nevertheless, the general government deficit ratio fell significantly, from 3.7% in 2021 to 2.6%. In this context, the high inflation initially took pressure off public finances: revenue rose sharply, whilst expenditure (excluding the temporary support measures) grew only moderately at first. Economic activity, which was relatively favourable in a full-year comparison, likewise had a positive impact. The debt-to-GDP ratio is also likely to have fallen, having declined from 68.6% in 2021 to 66.6% by the third quarter of 2022. Although debt increased, nominal GDP in the denominator grew to an even greater extent.

The new fiscal support measures in connection with the energy crisis and high inflation include, specifically, payments to gas trading companies, the electricity and gas price brakes, and the exemption from taxes and social contributions for "inflation compensation bonuses" paid by employers to their employees. Exempting these bonuses causes net wages to rise more strongly than gross wages in percentage terms.

In order to overcome the energy crisis, it is important that the measures maintain incentives to save energy. And they do so to a sizeable extent. For example, the electricity and gas price brakes do not simply cap current prices, but instead provide transfers to households and enterprises based on their past consumption. For this reason, it is still financially worthwhile for them to consume less energy.

In the fight against high inflation, public finances can support monetary policy by not increasing price pressures. Against this background, there is a case to be made for restricting government credit financing and limiting the rise in the deficit. Ways of achieving this include, for instance, targeted assistance focusing on low-income households as well as on hard-hit enterprises with sound business models. By contrast, the recently adopted measures are more broadly based.

The government deficit ratio is likely to increase significantly again this year. In future, however, it should fall back to around 1½% as the temporary support measures expire.

In Germany, government debt is oriented particularly around the constitutional debt brake and EU fiscal rules. As an exception, these allow for increased borrowing in times of crisis. The Federal Government made use of this option last year in order to top up the Economic Stabilisation Fund with emergency loans totalling €200 billion. The Economic Stabilisation Fund is now set to finance measures to curb the impact of high energy prices until mid-2024. For the fiscal rules to be effective, it is important not to overuse the escape clauses. In this respect, too, it is advisable to devise measures that are as targeted as possible – or to fund them directly out of other sources.

Moreover, the transparency and traceability of fiscal policy remain important to the general public. For this reason, special funds and off-budget entities should be employed only within tight constraints. However, the Federal Government is now planning considerable deficits in its special funds associated with the energy crisis, climate change and defence.

Credible fiscal rules are of fundamental importance for the euro area, too. According to the latest estimate for the past year from the European Commission, the euro area deficit ratio stood at 3.5%, while the debt ratio came to 94%.

The situation varies considerably between the Member States, however. A number of countries still recorded deficit ratios well above 3% and debt ratios well above 100%. As in the past year, the general escape clause of the Stability and Growth Pact remains in effect this year.

Nevertheless, irrespective of the new challenges posed by the energy crisis, the euro area countries should reliably reduce their debt ratios and achieve a sound fiscal footing over time.

At present, a reform of European fiscal rules is on the agenda. In this context, the current regular quantitative requirements are entirely suitable for ensuring sound government finances. High debt ratios rapidly decline if a structurally close-to-balance mark is targeted and ultimately achieved.

In the past, however, adherence to the regular requirements was rare. In many areas, there was scope for discretion, which was regularly utilised by the European Commission and European Council to soften the requirements. Ultimately, the implementation of the rules was often very unclear overall.

In November 2022, the European Commission published its first proposals for reform. From the Bundesbank's point of view, these proposals are off the mark and do not remedy the deficiencies described above. Instead, they would soften the fiscal limits and make the process of determining them almost entirely opaque: there would be country-specific medium-term objectives negotiated between the European Commission and each Member State. These would be based on complex long-term projections and blur the line between fiscal and economic policy objectives. Such rules may be more likely to delay rather than expedite the reduction of high debt ratios.

The debate on the reform of EU rules will continue this year. It is important to ultimately agree on rules that would promote sound public finances and, in particular, reliable reduction of high debt ratios.[5]

Banking supervision and financial stability

The macro-financial environment worsened considerably in 2022. The rises in inflation and market interest rates contributed to this, but so did the significantly weaker economic activity and the clouded outlook.

In the previous year, the real economic outlook was much more favourable: the economy was increasingly recovering from the effects of the COVID-19 pandemic, a strong upturn was expected, and market interest rates were low. At the same time, the upswing in the financial cycle, which had begun several years earlier, continued.[6] Credit growth accelerated, risk premia were low and market valuations were high.

In its 2022 Financial Stability Review, the Bundesbank therefore warned that the risks of credit defaults or interest rate changes

5 See Deutsche Bundesbank, European Stability and Growth Pact: individual reform options, Monthly Report, April 2019, pp. 77-90 and Deutsche Bundesbank, Public debate on the review of the EU economic governance, Bundesbank contribution of 22 December 2021.
6 The term "financial cycles" is used to describe joint upward and downward movements of credit aggregates and asset prices that typically occur over the medium run and which extend beyond the length of business cycles.

may have been underestimated and that the value of loan collateral such as real estate may have been overestimated. The upturn in the financial cycle is now waning. Lending and asset prices are developing less dynamically than before.

The German financial system is highly vulnerable as a result of the deterioration in the macro-financial environment. For example, given the economic slowdown, the risks from corporate loans are likely to increase. Credit risk could also rise in the retail banking segment if the currently stable situation in the German labour market deteriorates significantly as a result of an economic downturn. Furthermore, high inflation and the associated losses in real income are weighing on the sustainability of household debt. A strong correction in the residential and commercial real estate markets could also reduce the value of loan collateral and thus lead to losses among financial institutions.

Thus far, no fundamental reassessment of credit risk has been observed. In 2022, banks continued to assess their credit risks as low, while their risk provisioning persisted at a historically low level. German banks' non-performing loan (NPL) ratios have been unremarkable so far. Nevertheless, financial institutions should ensure adequate risk assessment and prudent risk provisioning. In addition, in light of the high degree of uncertainty, they should also exercise caution when distributing profits.

The German banking system continues to have a high level of maturity transformation. There are largely short-term deposits on one side and long-term loans on the other. Some banks may underestimate maturity transformation because they overestimate how long customers will leave deposits with them.[7] Through maturity transformation, institutions become exposed to liquidity and interest rate risk.

The fact that the interest rate environment can undergo sudden and dramatic change was demonstrated very clearly in 2022. Given the high rates of inflation, the interest rate reversal was faster and more pronounced than had been forecast even at the beginning of the year. For institutions, this development presented both challenges and opportunities.

In the short term, it had a negative impact, as bond prices came under pressure and funding costs rose faster than the yields on the assets sides of banks' balance sheets. Small and medium-sized banks in particular were negatively affected, as they typically do not fully hedge their interest rate risk. However, large banks also suffered considerable losses in some cases, too.

Nevertheless, in the medium term, the rise in interest rates will benefit institutions' profitability as they will be able to widen their interest margins again. This is also indicated by the results of the latest stress test for small and medium-sized institutions.[8]

In contrast to the interest rate reversal, the Russian war of aggression against Ukraine is affecting most German banks only indirectly. Domestic institutions' claims on debtors in Russia, Ukraine and Belarus are quite small overall. In addition, only a few domestic banks are active in clearing energy contracts. Supervisors closely supervised the institutions concerned and carefully monitored market conditions. Ultimately, there were no serious disruptions in this area, which was also helped by the accompanying fiscal measures.

The financial system's ability to deal with unfavourable developments rests on its resilience. This depends, in particular, on institutions' capital adequacy. The macroprudential measures announced by the Federal Financial Supervisory Authority (BaFin) in January 2022 are helping to strengthen the resilience of the banking sys-

7 See Deutsche Bundesbank, Financial Stability Review 2022.
8 See Deutsche Bundesbank and Federal Financial Supervisory Authority (2022), Results of the 2022 LSI stress test, joint press release, 28 September 2022.

tem in light of the considerable existing vulnerabilities.[9]

Analyses by the Bundesbank indicated that a severe macro-financial shock could lead to considerable losses in the German financial system. The package of measures preserves existing excess capital and thereby also helps to limit distributions. Furthermore, there is an incentive for banks to build up additional capital. Both of these aspects strengthen the resilience of the banking system.

Another issue related to resilience is cybersecurity, which has grown significantly in importance. Dynamic changes in information technology necessitate constant vigilance and punish those who neglect to maintain their own defences. Supervisors are monitoring these developments very closely. Whether existing cybersecurity standards achieve the desired level of protection depends on many factors and can often only be first ascertained in the event of a real attack.

The resilience of financial corporations to cyber attacks is thus reviewed as part of the TIBER-DE tests (Threat Intelligence-Based Ethical Red Teaming in Germany). In these tests, one team takes on the role of a cyber attacker and actively tries to find weaknesses in the targeted security architecture. A second team defends the architecture, whilst a third team ensures compliance with the rules of the test. The importance of the TIBER tests is also reflected in the adoption by European legislators of the Digital Operational Resilience Act (DORA), under which such tests will be mandatory in the future.

The tense geopolitical situation and, in particular, Russia's war of aggression against Ukraine underline the importance of resilience to cyber attacks. Looking ahead, both the frequency and severity of cyber attacks are unlikely to diminish. This also affects the Bundesbank. In order to ensure its operational IT security, the Bundesbank has gradually ramped up a variety of measures accompanied by targeted staff awareness campaigns. Last year, the Bundesbank recorded a persistently high volume of attacks. These attacks involved internet-based systems as well as emails infected with malware.

Overall, digital transformation is of great importance to the banking system. Commercial banks need to create and expand modern digital infrastructures. They must develop new digital business areas and transition existing ones into the digital age.

German G7 Presidency

The impact of digitalisation on the financial sector was also a topic of consultations during Germany's presidency of the G7. The Bundesbank and the Federal Ministry of Finance jointly prepared the agenda for the work stream of the finance ministries and central banks (G7 Finance Track) last year. The highlight was the meeting of the finance ministers and central bank governors at the Petersberg near Bonn in May 2022.

Delegations at this and all other meetings discussed the impact of Russia's war against Ukraine. One main aim was to mobilise the necessary financial support for Ukraine and to analyse the consequences of the war for the global economy and inflation.

Global supply chains and the future of globalisation were another topic. In the light of the experiences gained during the COVID-19 pandemic and Russia's war of aggression, greater diversification of supply chains or production

9 See Federal Financial Supervisory Authority (2022), Package of macroprudential measures: BaFin plans to increase the countercyclical capital buffer and set a systemic risk buffer for the residential property sector, press release of 12 January 2022. Under the package of measures, the countercyclical capital buffer (CCyB) was raised to 0.75% of risk-weighted assets on domestic exposures and a sectoral systemic risk buffer (sSyRB) of 2% of risk-weighted assets on loans secured by residential real estate was introduced. Banks were granted a transitional period until 1 February 2023. In addition, BaFin recommended that lenders take due account of sustainable lending standards with respect to residential real estate financing.

close to sales markets could hedge against geopolitical risks. If it were possible to render supply chains more robust without losing the advantages of international trade, monetary and fiscal policy would also benefit. The German delegation put these and other aspects up for discussion in the G7, with the participation of high-level experts.

Climate change and climate policy have been G7 agenda points for some time now. An important contribution made by central banks in this context is integrating climate aspects into macroeconomic models. Under the German G7 Presidency, the analytical exchange among central banks was intensified.

One issue is improving understanding of the impact of climate change on monetary policy and financial stability. Another is how best to shape the transition to a zero-emissions economy. This transition should involve as few adverse effects on inflation, growth, the labour market and competitiveness as possible. The Bundesbank is now looking at climate change considerations and other sustainability issues in many areas (see the box on pp. 24 f.).

A G7 conference hosted by the Bundesbank in November 2022 addressed the international dimension of digital payments. This built on work by the G20 on improving cross-border payments. Since Russia's attack on Ukraine, this issue, too, is increasingly being viewed from a geopolitical perspective.

On 1 January 2023, Germany passed the baton of the G7 presidency on to Japan.

Payments

Cash remains the most commonly used means of payment for everyday transactions in Germany. A large majority of the population lay store by the ability to use cash. Safeguarding the cash supply therefore remains very important – in normal times as well as in times of crisis. However, there has been a continual increase in the significance of cashless payment methods. According to the Bundesbank's 2021 payment behaviour study, 58% of respondents used cash to pay for goods and services. Card use increased significantly, particularly as a result of the contactless function, and now accounts for a share of 30%. Mobile payments with smartphones and wearables such as smartwatches have also arrived in Germany.

In addition, the importance of instant payments is on the rise. More than one in ten credit transfers in the SEPA area are already processed in real time. Since 2018, it has been possible to settle payments in euro instantly and irrevocably, 24 hours a day, 365 days a year, using the Eurosystem's TARGET Instant Payment Settlement (TIPS) platform. In future, instant payments are to be an integral part of the digital payments system in Europe.

One factor in this is likely to be the European Payments Initiative, a joint initiative of several European banks and payment service providers. The objective is to create an instant payments-based unified European payment solution for all normal payment situations in-store and online. The Bundesbank and the Eurosystem still believe in the necessity of such a pan-European payment solution. This topic was the subject of intense debate at the Deutsche Bundesbank's Payments Symposium in September 2022.

Central bank digital currency (CBDC) could be another component in future digital payments in Europe. In the Eurosystem, work on the digital euro project is in full swing, and the Bundesbank is closely involved in this exploratory work.

The investigation phase on the digital euro, i.e. central bank digital currency for all, was launched in October 2021 and is progressing according to plan. By autumn 2023, the Eurosystem will have drawn up a concrete design concept for a digital euro. This will include possible characteristics of a digital euro, such as the form in which it would be available or how technical settlement might work. What is certain is that private payment service providers will play a key role in the issuance and circulation of the digital euro. The Governing Council of the ECB will decide in the autumn of 2023 whether to move to a realisation phase.

The Governing Council, in close collaboration with the European Union's legislative bodies, will only decide at a later date whether to introduce the digital euro.

Irrespective of the digital euro project, the Eurosystem is also investigating whether the use of newer technologies, such as distributed ledger technology, has the potential to improve the settlement of financial transactions. CBDC which is made available to a limited group of institutions (known as wholesale CBDC) could be employed. The aim is to be able to settle even such large-scale financial transactions in secure central bank money. This would create a modern alternative to stablecoins.

The Bundesbank is supporting the Eurosystem's efforts in this direction. It has already tested a bridge solution between traditional payment systems and innovative settlement technology. The trigger solution allows tokenised assets to be transferred against central bank money.

At present, various transactions in central bank money are settled on the TARGET2 platform. For example, commercial banks' refinancing operations with the central bank are settled here, as are payments between commercial banks. By contrast, the purchase and sale of securities in exchange for central bank money takes place on the TARGET2-Securities (T2S) platform.

The Eurosystem's TARGET2/T2S consolidation project, which was launched in 2017, aims to further harmonise and technically consolidate these two systems. The objective is to further automate processes and exploit a wide range of synergies. For example, in future, the TARGET2 successor T2 will use the same messaging standard as TARGET2-Securities. Work on this project is being pursued with much vigour and dedication. Given the central importance of TARGET2 for the European market infrastructure, the smooth transition to the new T2 system is vital for the financial system and represents a milestone for the European market infrastructure. The project's timeline was therefore extended by one year in the summer of 2020 in response to the pandemic.

In October 2022, the Governing Council of the ECB decided to further postpone its launch by four months. It is now scheduled to go live in March 2023. This gives the Eurosystem and market participants more time to test the new platform and prepare for migration. The Bundesbank will continue to liaise closely with credit institutions and market infrastructures at all levels in order to ensure a smooth transition to T2.

Last year, synergies were also leveraged in the legally binding reporting of payment fraud data: true to the motto "collect data only once", these data now only have to be transmitted to the Bundesbank for the ECB payments statistics and not, as previously, to several reporting units in parallel.

In the field of cash, the Bundesbank worked closely with other central banks in 2022. The Bundesbank, in cooperation with the Federal Ministry of Finance and the German banking industry, reached an agreement with the Ukrainian central bank allowing Ukrainian refugees fleeing the war to exchange Ukrainian hryvnia banknotes in the period from May 2022 to October 2022. The Bundesbank allowed credit institutions to deposit converted hryvnia banknotes at its branches and returned them to the National Bank of Ukraine.

In another project, the Bundesbank assisted the Croatian central bank with the introduction of the euro. Amongst other things, the Bundesbank lent the Croatian central bank cash-in-transit vehicles from its fleet and provided euro

Work on climate change and sustainability at the Bundesbank

The Bundesbank is gradually expanding its expertise in analysing the consequences of climate change and climate policy. Since the beginning of 2021, work on this topic has been coordinated by the Steering Committee for Green Finance, in which members of the Executive Board also participate.

Established instruments are being adapted and new models are being employed to analyse the macroeconomic impact of climate change and climate policy.[1] The aim is to assess the sectoral effects of climate risks and to analyse policy-driven adjustment processes over time – not least in an international context, e.g. with regard to climate clubs[2] or climate tariffs.[3] In addition, the impact of firm-level greenhouse gas emissions on the financial market is being investigated.[4]

This subject area is also a key focus of the Bundesbank's research programme:[5] macroeconomic modelling is being used to examine, in particular, the effects of heterogeneities across households, enterprises or countries. Financial market research is looking at developments in new markets for sustainable financial products and their implications for financial stability and regulation. The first discussion papers in this area have already been published.[6]

In banking supervision, the Bundesbank is committed to ensuring that institutions integrate climate risks into their risk management, business and risk strategy, corporate governance and business organisation. At the same time, a framework needs to be established to ensure that information on climate risks is disclosed and to increase market transparency in the credit sector. In addition, the Bundesbank is working on a climate risk stress test to assess the vulnerability of individual financial institutions and of the entire German banking sector to climate risks.

Moreover, the Bundesbank continuously analyses the financial risks that climate change and climate policy pose to its own balance sheet. In July 2022, the Bundesbank published the first climate-related report on its non-monetary policy euro portfolio.[7] This portfolio is used to invest the Bundesbank's own funds, reserves and provisions. Going forward, the report will be published regularly and refined on an ongoing basis.

In terms of monetary policy purchases, the Governing Council of the ECB has decided to

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1 See also Deutsche Bundesbank (2022), Climate change and climate policy: analytical requirements and options from a central bank perspective, Monthly Report, January 2022, pp. 33-61.
2 See Ernst, A., N. Hinterlang, A. Mahle and N. Stähler (2022), Carbon pricing, border adjustment and climate clubs: An assessment with EMuSe, Deutsche Bundesbank Discussion Paper No 25/2022.
3 See, for instance, the Bundesbank's January 2022 Monthly Report, op. cit., for environmental multisector analyses on the impact on macroeconomic developments in the EU of various transition scenarios created by the Network of Central Banks and Supervisors for Greening the Financial System (NGFS).
4 See, for instance, Deutsche Bundesbank (2022), Scenario-based equity valuation effects induced by greenhouse gas emissions, Monthly Report, January 2022, pp. 63-85.
5 Climate change features prominently in the research programme as one of a number of overlapping horizontal subject areas. See https://www.bundesbank.de/en/bundesbank/research/research-centre/research-areas-and-programme
6 See, for instance, Meinerding, C., Y. Schüler and P. Zhang (2023), Shocks to transition risk, Deutsche Bundesbank Discussion Paper No 04/2023; Bernard, R., P. Tzamourani and M. Weber (2022), Climate change and individual behaviour, Deutsche Bundesbank Discussion Paper No 01/2022. For an overview, see https://www.bundesbank.de/en/bundesbank/green-finance/-/climate-related-research-paper-of-the-deutsche-bundesbank-894900
7 See Deutsche Bundesbank, Climate-related disclosures by the Deutsche Bundesbank 2022.

tilt its reinvestment purchases of corporate bonds towards issuers with better climate performance. This takes better account of climate-related financial risks. Amongst other measures, issuers will, in future, also be obliged to disclose climate-related risks if their securities are to be eligible for use as collateral in central bank operations.[8] Furthermore, the Bundesbank is represented in the newly formed Climate Change Forum with the aim of improving coordination within the Eurosystem.

Climate-related risks can only be analysed if the relevant data are available. To that end, the Bundesbank signed contracts with two providers of climate data at the beginning of last year on behalf of all members of the European System of Central Banks (ESCB).[9] In collaboration with the Banco de España, the Bundesbank is tackling persistent data gaps as part of a BIS Innovation Hub project in which corporate disclosures are gathered and searched for sustainability-related data using machine learning algorithms.

At the national, European and global level, the Bundesbank is working to ensure that sustainability-related risks are better identified, measured and managed, and stringently reported. Bundesbank Executive Board member Dr Sabine Mauderer plays a major role, as Vice-Chair, in steering and developing the global Network of Central Banks and Supervisors for Greening the Financial System (NGFS). In May, the NGFS launched its new work programme, which aims to improve scenario analysis and macroeconomic modelling of climate risks by April 2024. Other areas of focus include biodiversity-related risks and knowledge transfer. The Vice-President of the Bundesbank, Professor Claudia Buch, also chairs a Financial Stability Board (FSB) working group on climate vulnerabilities and climate data.

The Bundesbank is aware of its responsibility to conserve natural, social and economic resources over the long term for the sake of present and future generations. Sustainability in the broader sense thus plays an important role in the Bundesbank's current internal strategy cycle, too. As regards the ecological dimension of sustainability, Strategy 2020 already included the objective to "use environmental resources sustainably and lower their consumption". Since 2015, the Bundesbank has documented developments and achievements in this area in its annual Environmental Report.[10] In order to achieve the ambitious goal of climate neutrality by 2030, the Bundesbank is aligning its environmental management system with the requirements of the EU Eco-Management and Audit Scheme (EMAS).[11] Compared with the baseline figure for 2013-14, the Bundesbank had already saved more than 50% of CO_2 equivalents by 2021.[12]

But there is yet another dimension to sustainability. The Bundesbank promotes social sustainability, for example, through occupational health measures, its audit on work-life balance and its training programme, as well as its proactive management of the challenges posed by demographic change.

8 See ECB takes further steps to incorporate climate change into its monetary policy operations, and ECB provides details on how it aims to decarbonise its corporate bond holdings.
9 See Deutsche Bundesbank, Climate-related data successfully procured, press release of 9 March 2022.
10 See Deutsche Bundesbank, Environmental Report 2021.
11 See Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS), repealing Regulation (EC) No 761/2001 and Commission Decisions 2001/681/EC and 2006/193/EC (europa.eu) as well as on EMAS: About EMAS.
12 See Deutsche Bundesbank, Environmental Report 2021.

coins from its holdings. The close cooperation will continue going forward, as the Croatian central bank has joined the Bundesbank-led banknote procurement consortium.

Bundesbank round-up continued

Following a hiatus due to COVID-19, the Bundesbank ramped up its direct dialogue with the general public again in 2022. Between April and October, the Bundesbank toured the country with a roadshow, visiting 86 major cities and municipalities all over Germany as a way of reaching out to people in their local communities. An interactive exhibition with images, texts, videos and games provided an entertaining introduction to the world of central banks and the euro. The roadshow attracted more than 35,000 visitors.

In addition, the Bundesbank opened its doors to the general public at four locations. Around 14,000 guests took the opportunity of getting to know the Bundesbank's many tasks in a fun and engaging way.

At the fourth Euro20+ event, Bundesbank President Joachim Nagel answered young people's questions about the current challenges facing monetary policy. In addition, the Bundesbank was involved in the festivities to celebrate German reunification in Erfurt, presenting an exhibition on the history of German monetary union from the introduction of the Deutsche Mark in the German Democratic Republic to the present day, which was viewed by around 10,000 visitors.

The special exhibition "Money in caricature and satire", which opened in the autumn of 2022 at the Bundesbank's Money Museum in Frankfurt am Main, is also attracting lively interest. The exhibition takes an unusual look at the topics of cash, book money, monetary policy and global money.

Since 2020, the Bundesbank has been conducting a regular, broad-based dialogue with civic organisations, initially triggered by the review of its monetary policy strategy. Last year, the dialogue was, for the first time, conducted on-site in Berlin and was very well received. In addition, the Bundesbank has taken advantage of numerous opportunities to engage with policymakers in Berlin.

Last year, the Bundesbank was again able to reach many people, especially young people, with its economic education services. Digital materials and new media formats help to convey content in an understandable and entertaining manner. For example, the new interactive multimedia e-book "Understanding money" (Geld verstehen digital) answers school children's everyday questions on all things money-related.

The objective is not only to communicate the Bundesbank staff's expertise to outsiders. There is also much to be learned from one other within the Bundesbank. Staff networking within and across business units will therefore be promoted even more strongly going forward. To this end, a digital platform has been set up. Networking takes various forms, ranging from the everyday exchange of knowledge, mutual support or "working out loud circles" to job shadowing, internal internships and mentoring. As part of this drive, new developments in the working world, such as the use of agile methods and digitalisation, are also being actively shaped within the Bank.

Digitalisation, in particular, has given rise to a number of developments whose benefits and risks are being analysed by the Bundesbank in projects. For example, quantum computing has the potential to render existing IT security procedures and encryption technologies ineffective. The Bundesbank is testing which encryption methods could be effective in the future.

In addition to digitalisation, the increasingly integrated work within the Eurosystem and new forms of cooperation are also changing the workplace. To ensure that the Bundesbank is in the best possible position to operate in such a changed environment, the Executive Board has initiated an examination of organisational and operational structures. The overarching objective is to evolve the Bundesbank into a modern and even more efficient organisation, especially with regard to digital services and processes. To this end, processes are being optimised, the Bank's steering capacity is being improved and the organisational structure is being adapted.

The most valuable resource in all this is the employees themselves. Their skills and different outlooks complement each other as they work together and thus make a key contribution to the Bundesbank's success.

Having a very diverse staff is particularly enriching. The Bank has therefore set itself the goal of doing even more to promote a diverse workforce going forward. The focus of recent decades has been, and remains, the inclusion of staff with disabilities and gender equality.

The Bank has also been a founding member of the European ESCB & SSM Diversity Network since 2016. As a visible sign of its commitment to the core values of equality, diversity and inclusion, it signed the network's Equality, Diversity and Inclusion Charter in May 2022.

At the global level, the Bundesbank was a founding member of the G7 CeBaDi network in 2018 and has been a member ever since. Under the German G7 Presidency, it organised the G7 CeBaDi summit in 2022.

In addition, the Bundesbank is working on a holistic diversity policy and has participated in various initiatives to promote greater diversity. Diverse teams typically achieve better results, as they tend to challenge existing solutions and think more creatively. This is an important basis for keeping an organisation innovative, adaptive and capable of developing. In an ever faster changing world, these three characteristics are very important to the Bundesbank.

Chronology of monetary policy decisions

10 March 2022

Against the backdrop of further increasing inflationary pressures, the Governing Council of the European Central Bank (ECB) decides to reduce net purchases under the asset purchase programme (APP) at a faster pace than previously envisaged in December 2021. In line with this, monthly net asset purchases in April will amount to €40 billion. Purchases will then be reduced to €30 billion in May and €20 billion in June. The Governing Council announces its intention to conclude net asset purchases in the third quarter if the incoming data support the expectation that the medium-term inflation outlook will not fall below the 2% target again after the end of its net asset purchases.

The Governing Council also amends its forward guidance on policy rates. According to the new wording, it will make any adjustments to the key ECB interest rates "some time" after the end of net purchases under the APP. It expects such adjustments to be gradual.

9 June 2022

The Governing Council decides, on the basis of its updated assessment of the inflation outlook, to take further steps in normalising its monetary policy. It decides to end net purchases under the APP as of 1 July 2022. It also announces its intention to continue full reinvestment of principal payments from maturing securities purchased under the APP for an extended period of time past the date when it starts raising the key ECB interest rates and, in any case, for as long as necessary to maintain ample liquidity and an appropriate monetary policy stance.

In addition, the Governing Council concludes that the conditions formulated in the previous year for raising the key ECB interest rates have now been satisfied. Accordingly, and in line with the ECB's policy sequencing, the Governing Council expresses its intention to raise the key ECB interest rates by 25 basis points at its July monetary policy meeting. It also communicates that it expects to raise the key ECB interest rates again in September, and possibly by a larger increment. It furthermore anticipates a gradual but sustained path of further increases in interest rates beyond September.

15 June 2022

At an ad hoc meeting, the Governing Council decides that it will apply flexibility in reinvesting redemptions coming due in the pandemic emergency purchase programme (PEPP) portfolio. This specifically means that PEPP redemptions will no longer necessarily be reinvested in the jurisdictions in which they fall due. Instead, it will, where appropriate, be possible to reinvest those redemptions in jurisdictions in which the Governing Council considers orderly transmission to be at risk due to the pandemic.

The Governing Council also decides to mandate the relevant Eurosystem Committees together with the ECB services to accelerate the completion of the design of a new anti-fragmentation instrument.

21 July 2022

The Governing Council takes further steps to ensure inflation returns to its 2% target over the medium term. It judges that, in light of the further increase in inflation risks, it is appropriate to take a larger first step on its policy rate normalisation path than was signalled at its meeting on 9 June. It therefore decides to raise the three key ECB interest rates by 50 basis points. Accordingly, the interest rate on the deposit facility stands at 0%, while the interest rate on the main refinancing operations is 0.5% and the interest rate on the marginal lending facility is 0.75%. The Governing Council furthermore reaffirms its view that further normalisation of interest rates will be appropriate. The future path of policy rates will continue to be data-dependent, and interest rate decisions will be made on a meeting-by-meeting basis.

Above and beyond this, the Governing Council approves a new instrument, the Transmission Protection Instrument (TPI). As the Governing Council continues normalising monetary policy, the TPI will ensure that the monetary policy stance is transmitted smoothly across all euro area countries. This will allow the Governing Council to more effectively deliver on its price stability mandate. The TPI can be activated to counter unwarranted, disorderly market dynamics that pose a serious threat to the tranmission of monetary policy across the euro area. Under the TPI, the Eurosystem will be able to make secondary market purchases of securities issued in jurisdictions experiencing a deterioration in financing conditions not warranted by country-specific fundamentals.

8 September 2022

The Governing Council decides to raise the three key ECB interest rates by 75 basis points. Accordingly, the interest rate on the deposit facility stands at 0.75%, while the interest rates on the main refinancing operations and the marginal lending facility are 1.25% and 1.5%, respectively.

The reason for this major interest rate step is that inflation remains far too high and is likely to stay above target for an extended period. The Governing Council expects to raise interest rates further over the next several meetings to dampen aggregate demand and guard against the risk of a persistent upward shift in inflation expectations.

It also decides to suspend the two-tier system for the remuneration of excess reserves. Following the raising of the deposit facility rate to above zero, this system is no longer necessary.

27 October 2022

The Governing Council decides to raise the three key ECB interest rates further, by 75 basis points. Accordingly, the interest rate on the deposit facility stands at 1.5%, while the interest rates on the main refinancing operations and the marginal lending facility are 2% and 2.25%, respectively.

The Governing Council also decides to change the terms and conditions of the third series of targeted longer-term refinancing operations (TLTRO III). The interest rates payable by banks for TLTRO III operations will be adjusted with effect from 23 November 2022. From that date until the maturity date or early repayment date of each outstanding operation, the interest rate will be indexed to the average applicable key ECB interest rates over this period. In view of the unexpected and extraordinary rise in inflation, the recalibration must be carried out to ensure consistency with the broader monetary policy normalisation process. It is intended to reinforce the transmission of policy rate increases to bank lending conditions.

Furthermore, the Governing Council adjusts the remuneration of minimum reserves held by credit institutions with the Eurosystem. In the future, these will be remunerated at the interest rate on the deposit facility, rather than at the main refinancing operations rate.

15 December 2022

The Governing Council decides to raise the three key ECB interest rates by 50 basis points. Accordingly, the interest rate on the deposit facility stands at 2%, while the interest rates on the main refinancing operations and the marginal lending facility are 2.5% and 2.75%, respectively. Based on the substantial upward revision of the inflation outlook, the Governing Council expects to raise its key interest rates further. It judges that interest rates will still have to rise significantly at a steady pace. This will enable them to reach levels that are sufficiently restrictive to ensure a timely return of inflation to the 2% medium-term target. The Governing Council's future policy rate decisions will continue to be data-dependent and follow a meeting-by-meeting approach.

Furthermore, the Governing Council announces principles for normalising the Eurosystem's monetary policy securities holdings. From the beginning of March 2023 onwards, the APP portfolio will decline at a measured and predictable pace, as the Eurosystem will not reinvest all of the principal payments from maturing securities. The decline in holdings will amount to €15 billion per month on average until the end of the second quarter of 2023. Its subsequent pace will be determined over time. At its meeting in February 2023, the Governing Council will announce the detailed parameters for reducing the APP holdings.

Finally, the Governing Council states that it will review its operational framework for steering short-term interest rates by the end of 2023. This will provide information regarding the endpoint of the balance sheet normalisation process.

Annual accounts of the Deutsche Bundesbank for 2022

Balance sheet of the Deutsche Bundesbank as at 31 December 2022

Assets

			31.12.2021
		€ million	€ million
1 Gold and gold receivables		184,036	173,821
of which: gold receivables €226,672.54			*(0)*
2 Claims on non-euro area residents denominated in foreign currency			
2.1 Receivables from the IMF	58,047		(54,917)
2.2 Balances with banks and security investments, external loans and other external assets	34,406		(32,649)
		92,453	87,566
3 Claims on euro area residents denominated in foreign currency		38	35
4 Claims on non-euro area residents denominated in euro		3,386	–
5 Lending to euro area credit institutions related to monetary policy operations denominated in euro			
5.1 Main refinancing operations	1,110		(300)
5.2 Longer-term refinancing operations	235,873		(421,685)
5.3 Fine-tuning reverse operations	–		(–)
5.4 Structural reverse operations	–		(–)
5.5 Marginal lending facility	519		(0)
		237,502	421,985
6 Other claims on euro area credit institutions denominated in euro		8,294	3,495
7 Securities of euro area residents denominated in euro			
7.1 Securities held for monetary policy purposes	1,072,976		(1,027,728)
7.2 Other securities	–		(–)
		1,072,976	1,027,728
8 Claims on the Federal Government		4,440	4,440
9 Intra-Eurosystem claims			
9.1 Participating interest in the ECB	2,578		(2,417)
9.2 Claims equivalent to the transfer of foreign reserves to the ECB	10,635		(10,635)
9.3 Net claims related to the allocation of euro banknotes within the Eurosystem	–		(–)
9.4 Other claims within the Eurosystem (net)	1,266,872		(1,259,534)
		1,280,085	1,272,586
10 Items in course of settlement		2	1
11 Other assets			
11.1 Coins	812		(1,086)
11.2 Tangible and intangible fixed assets	863		(897)
11.3 Other financial assets	10,003		(11,621)
11.4 Off-balance-sheet instruments revaluation differences	0		(0)
11.5 Accruals and prepaid expenditure	8,452		(5,453)
11.6 Sundry	249		(411)
		20,379	19,468
		2,903,591	3,011,124

Liabilities

				31.12.2021
			€ million	€ million
1	Banknotes in circulation		381,257	374,552
2	Liabilities to euro area credit institutions related to monetary policy operations denominated in euro			
	2.1 Current accounts	66,583		(902,096)
	2.2 Deposit facility	1,132,287		(233,948)
	2.3 Fixed-term deposits	–		(–)
	2.4 Fine-tuning reverse operations	–		(–)
	2.5 Deposits related to margin calls	1,184		(2,186)
			1,200,055	1,138,230
3	Other liabilities to euro area credit institutions denominated in euro		21,289	26,972
4	Liabilities to other euro area residents denominated in euro			
	4.1 General government deposits	132,215		(246,658)
	4.2 Other liabilities	45,418		(52,239)
			177,633	298,897
5	Liabilities to non-euro area residents denominated in euro		333,608	404,339
6	Liabilities to euro area residents denominated in foreign currency		88	35
7	Liabilities to non-euro area residents denominated in foreign currency		–	–
8	Counterpart of special drawing rights allocated by the IMF		47,048	46,454
9	Intra-Eurosystem liabilities			
	9.1 Liabilities related to the issuance of ECB debt certificates	–		(–)
	9.2 Net liabilities related to the allocation of euro banknotes within the Eurosystem	518,852		(509,840)
	9.3 Other liabilities within the Eurosystem (net)	–		(–)
			518,852	509,840
10	Items in course of settlement		0	0
11	Other liabilities			
	11.1 Off-balance-sheet instruments revaluation differences	–		(–)
	11.2 Accruals and income collected in advance	6,693		(5,059)
	11.3 Sundry	567		(667)
			7,260	5,726
12	Provisions		29,248	29,637
13	Revaluation accounts		181,712	170,729
14	Capital and reserves			
	14.1 Capital	2,500		(2,500)
	14.2 Reserves	3,041		(3,213)
			5,541	5,713
15	Distributable profit		–	–
			2,903,591	3,011,124

Profit and loss account of the Deutsche Bundesbank for the year 2022

				2021
			€ million	€ million
	1.1 Interest income	12,077		(7,319)
	1.2 Interest expense	−8,124		(−4,818)
1	Net interest income		3,954	2,501
	2.1 Realised gains/losses arising from financial operations	2		(378)
	2.2 Write-downs on financial assets and positions	− 922		(− 161)
	2.3 Transfer to/from provisions for general risks	972		(−1,346)
2	Net result of financial operations, write-downs and risk provisions		53	−1,129
	3.1 Fees and commissions income	113		(113)
	3.2 Fees and commissions expense	− 59		(− 53)
3	Net income from fees and commissions		55	60
4	Income from participating interests		28	172
5	Net result of pooling of monetary income		−2,204	−1,179
6	Other income		126	1,535
	Total net income		2,012	1,960
7	Staff costs		1,239	1,068
8	Administrative expenses		662	579
9	Depreciation of tangible and intangible fixed assets		143	153
10	Banknote production services		113	129
11	Other expenses		26	38
	Loss for the year		− 172	− 7
12	Allocation to/withdrawal from reserves owing to the restriction on distribution pursuant to Section 253(6) of the German Commercial Code (*Handelsgesetzbuch*)		172	7
	Distributable profit		–	–

Frankfurt am Main, 14 February 2023

DEUTSCHE BUNDESBANK
Executive Board

Dr Joachim Nagel   Professor Claudia Buch

Burkhard Balz   Dr Sabine Mauderer   Professor Joachim Wuermeling

Unqualified independent auditor's report for statutory audits of annual financial statements

To the Deutsche Bundesbank, Frankfurt am Main

Auditor's opinion on the annual financial statements

We have audited the annual financial statements of the Deutsche Bundesbank, Frankfurt am Main, consisting of the balance sheet as at 31 December 2022 and the profit and loss account for the business year from 1 January 2022 to 31 December 2022.

In our opinion, based on the findings of our audit, the said annual financial statements comply, in all material respects, with the legal requirements and the principles for the accounting of the Deutsche Bundesbank approved by the Executive Board pursuant to Section 26(2) of the Bundesbank Act and give a true and fair view of the net assets and financial position of the Deutsche Bundesbank as at 31 December 2022 and the results of operations for the business year from 1 January 2022 to 31 December 2022 in accordance with German principles of proper accounting.

Pursuant to Section 322(3) sentence 1 of the German Commercial Code (*Handelsgesetzbuch* – HGB) in conjunction with Section 26(2) sentence 3 of the Bundesbank Act, we declare that our audit has not led to any reservations with regard to the regularity of the annual financial statements.

Basis for the auditor's opinion on the annual financial statements

We conducted our audit of the annual financial statements in accordance with Section 317 HGB and German generally accepted standards for the audit of financial statements promulgated by the *Institut der Wirtschaftsprüfer* [Institute of Public Auditors in Germany] (IDW). Our responsibilities pursuant to these provisions and principles are further described in the "Auditor's responsibilities for the audit of the annual financial statements" section of our report. We are independent of the Deutsche Bundesbank in accordance with German commercial and professional laws and regulations and have fulfilled our other German ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion on the annual financial statements.

Other information

The Executive Board is responsible for other information. Other information comprises all information in the Annual Report with the exception of the audited annual financial statements and the respective auditor's report.

Our opinion on the annual financial statements does not cover this other information, and we therefore do not express an auditor's opinion or draw any other form of audit conclusion regarding this other information.

In connection with our audit, we have the responsibility to read the other information and to evaluate whether

– there are material inconsistencies between the other information and the annual financial statements or the findings of our audit, or

– the other information otherwise appears to contain a material misstatement.

If we conclude, on the basis of our audit, that the other information contains a material misstatement, we are obliged to draw attention to this matter. We have nothing to report in this regard.

Responsibilities of the Executive Board for the annual financial statements

The Executive Board is responsible for the preparation of the annual financial statements in accordance with the legal requirements and the principles for the accounting of the Deutsche Bundesbank approved by the Executive Board pursuant to Section 26(2) of the Bundesbank Act and for ensuring that the annual financial statements give a true and fair view of the net assets, financial position and results of operations of the Deutsche Bundesbank in accordance with German principles of proper accounting. Moreover, the Executive Board is responsible for such internal control as it determines necessary in accordance with German principles of proper accounting to enable the preparation of annual financial statements that are free from material misstatement, whether due to fraud (i.e. the manipulation of accounting records and misappropriation of assets) or error.

In preparing the annual financial statements, the Executive Board is responsible for assessing the Deutsche Bundesbank's ability to continue as a going concern. It is also responsible for disclosing, as applicable, matters related to going concern and using the going-concern basis of accounting, provided there are no factual or legal impediments thereto.

The Executive Board is responsible for overseeing the Deutsche Bundesbank's financial reporting process for the preparation of the annual financial statements.

Auditor's responsibilities for the audit of the annual financial statements

Our objectives are to obtain reasonable assurance about whether the annual financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion on the annual financial statements.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Section 317 HGB and German generally accepted standards for the audit of financial statements promulgated by the *Institut der Wirtschaftsprüfer* will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these annual financial statements.

We exercise professional judgement and maintain professional scepticism throughout the audit. We also

– identify and assess the risks of material misstatement in the annual financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations or the overriding of internal control.

– obtain an understanding of internal control relevant to the audit of the annual financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Deutsche Bundesbank's internal control.

– evaluate the appropriateness of the accounting policies used by the Executive Board as well as the reasonableness of accounting estimates and related disclosures made by the Executive Board.

– conclude on the appropriateness of the going-concern basis of accounting used by the Executive Board and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Deutsche Bundesbank's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion in each case. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Deutsche Bundesbank to cease to continue as a going concern.

– evaluate the overall presentation, structure and content of the annual financial statements including the notes and whether the annual financial statements represent the underlying transactions and events in a manner that gives a true and fair view of the net assets, financial position and results of operations of the Deutsche Bundesbank in accordance with German principles of proper accounting.

We communicate with the Executive Board regarding, amongst other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Frankfurt am Main, 20 February 2023

Baker Tilly GmbH & Co. KG
Wirtschaftsprüfungsgesellschaft
(Düsseldorf)

Professor Thomas Edenhofer
Wirtschaftsprüfer

Ralph Hüsemann
Wirtschaftsprüfer

Overview of the Deutsche Bundesbank's accounting policies

General accounting principles
Reflection of economic reality, thus giving a true and fair view of the Bundesbank's net assets, financial position and results of operations; prudence; recognition of post-balance-sheet events; materiality; going-concern basis; accruals principle; consistency and comparability.

Recognition of spot transactions
Spot transactions denominated in gold and foreign currency shall be accounted for from the trade date to determine the average cost and the realised gains and realised losses. Recognition of these spot transactions and of spot transactions in securities shall be based on the cash/settlement approach.

Valuation rules
Gold, foreign currency instruments, securities and financial instruments shall be valued at mid-market rates and prices as at the balance sheet date. Securities held to maturity shall be valued at amortised cost; write-downs are charged if impairment is expected to be permanent. The same applies to non-marketable securities and securities held for monetary policy purposes by virtue of a decision adopted by the Governing Council of the ECB.

No distinction shall be made between price and currency revaluation differences for gold, but a single gold revaluation difference shall be accounted for, based on the euro price per defined unit of weight of gold derived from the euro/US dollar exchange rate as at the balance sheet date.

Revaluation shall take place on a currency-by-currency basis for foreign currency instruments (including off-balance-sheet transactions).

In the case of securities, each revaluation shall take place on a code-by-code basis (same ISIN number/type).

Repurchase agreements
A repurchase agreement (repo) shall be recorded as a collateralised inward deposit on the liabilities side of the balance sheet, while the assets serving as collateral remain on the assets side of the balance sheet. A reverse repurchase agreement (reverse repo) shall be recorded as a collateralised outward loan on the assets side of the balance sheet for the amount of the loan.

In the case of lending transactions, the assets shall remain on the transferor's balance sheet. Lending transactions where collateral is provided in the form of cash shall be accounted for in the same manner as that prescribed for repurchase operations.

Income recognition
Realised gains and realised losses can arise only in the case of transactions which reduce a securities or foreign currency position. They shall be derived from a comparison of the transaction value with the acquisition value as calculated using the average cost method; they shall be taken to the profit and loss account.

Revaluation gains and losses shall accrue from the revaluation of assets at market values compared to their acquisition value as calculated using the average cost method. Unrealised gains shall not be recognised as income but recorded in a revaluation account.

Unrealised losses shall be taken to the profit and loss account if they exceed previous revaluation gains registered in the revaluation account. Unrealised losses taken to the profit and loss account in prior periods shall not be reversed in subsequent years against new unrealised gains. Unrealised losses in any one security, in any currency or in gold holdings shall not be netted against unrealised gains in other securities, currency or gold.

The average cost method shall be used on a daily basis to compute the acquisition cost of assets subject to exchange rate and/or price movements. The average acquisition cost of the assets shall be reduced by unrealised losses taken to the profit and loss account at year-end.

In the case of securities, the difference between the acquisition and redemption value (premium or discount) shall be amortised over the remaining contractual life of the securities in accordance with the internal rate of return method, presented as part of interest income (amortisation) and included in the acquisition value (amortised cost).

Accruals denominated in foreign currency shall be translated at the mid-market rate on each business day and change the respective foreign currency position.

Accounting rules for off-balance-sheet instruments

Foreign exchange forward transactions, forward legs of foreign exchange swaps and other currency instruments involving an exchange of one currency for another at a future date shall be included in the net foreign currency position as from the trade date.

Interest rate swaps, futures, forward rate agreements and other interest rate instruments shall be accounted for and valued on an item-by-item basis.

Profits and losses arising from off-balance-sheet instruments shall be recognised and treated in a similar manner to those from on-balance-sheet instruments.

Tangible and intangible fixed assets

Tangible and intangible fixed assets shall be valued at cost less depreciation and amortisation. Depreciation and amortisation shall be calculated on a straight-line basis and applied over the expected economic life of the asset. A distinction shall be made as follows:

– computers, related hardware and software, and motor vehicles: 4 years;
– equipment, furniture and plant in building: 10 years;
– building and refurbishment expenditure: 25 years;
– depreciation shall not apply to land.

Tangible and intangible fixed assets costing less than €10,000 after deduction of value added tax shall be written off in full in the year of acquisition.

Provisions

With the exception of the provisions for Eurosystem monetary policy operations, provisions shall be accounted for in accordance with the regulations set forth in the Commercial Code (*Handelsgesetzbuch*). Pursuant to Section 26(2) of the Bundesbank Act (*Bundesbankgesetz*), it shall be possible to create provisions for general risks associated with domestic and foreign business.

Transitional arrangements

The assets and liabilities shown on the closing Deutsche Mark balance sheet as at 31 December 1998 shall be revalued as at 1 January 1999. Unrealised gains arising on or before 1 January 1999 shall be recorded separately from the unrealised gains which arise after 1 January 1999. The market rates/prices applied by the Bundesbank on the euro-denominated opening balance sheet as at 1 January 1999 shall be deemed to be the average acquisition rates/prices as at 1 January 1999. The revaluation accounts for unrealised gains accruing on or before 1 January 1999 shall be released only in connection with revaluation losses and in the event of disposals after 1 January 1999.

General information on the annual accounts

Legal basis

Sections 26 and 27 of the Bundesbank Act (*Gesetz über die Deutsche Bundesbank*) form the legal basis for the annual accounts and distribution of profit. The provisions on accounting laid down in Section 26(2) sentence 2 of the Bundesbank Act allow the Bundesbank to apply the ECB's accounting policies.

Accounting policies of the Deutsche Bundesbank

The Governing Council of the ECB adopted policies for the ECB's annual accounts in accordance with Article 26.2 of the Statute of the ESCB. The Bundesbank decided to adopt these policies as its own accounting policies.[1] An overview of the Deutsche Bundesbank's accounting policies can be found on the preceding pages. The annual accounts of the Bundesbank thus follow the harmonised accounting and financial reporting rules of Eurosystem operations, both in terms of the structure of the balance sheet and the profit and loss account, and with regard to the valuation and accounting policies applied.

Cost accounting at the Bundesbank

The Bundesbank is furthermore required, pursuant to Section 26(4) sentence 1 of the Bundesbank Act, to prepare a cost account to assist it in its management and administrative tasks. In compliance with this legislation, the Bank draws up a standard cost account and an investment plan before the start of each financial year. The harmonised Eurosystem accounting policies for internal accounting adopted by the Governing Council of the ECB and compiled in the Committee on Controlling (COMCO) manual are also taken into account in this regard. At the end of the financial year, the Bank makes a comparative analysis of the budgeted figures and the actual costs and investment. This analysis is reviewed separately by the external auditors.

Creation of reserves owing to the restriction on distribution pursuant to Section 253(6) of the Commercial Code

Pursuant to Section 253 of the German Commercial Code (*Handelsgesetzbuch*), provisions for post-employment benefit obligations must be discounted at the average market rate corresponding to their residual maturity calculated over the past ten financial years. The relief resulting from application of the ten-year rather than the seven-year observation period must be calculated annually and may not be distributed. In accordance with Section 253(6) sentence 2 of the Commercial Code, the distribution of profits shall be restricted to the part that exceeds the amount for which distribution is restricted less any disposable reserves. However, the Bundesbank does not have any such reserves. The amount for which distribution is restricted itself has to be treated as reserves, and transfers to them and withdrawals from them are taken to profit and loss once the profit or loss for the year has been determined as part of the appropriation of profit. The resulting amount is reported as distributable profit (net profit).

Recognition of euro banknotes and …

The ECB and the national central banks of the euro area countries, which together comprise the Eurosystem, issue banknotes denominated in euro. The following allocation procedure was approved for recognition of the euro banknotes in circulation in the financial statements of the individual central banks of the Eurosystem.[2] The respective share of the total value of euro banknotes in circulation due to each central bank in the Eurosystem is calculated on the last business day of each month in accordance with the key for allocating euro banknotes. The ECB is allocated an 8% share of the total value of the euro banknotes in circulation, whereas the remaining 92% is allocated to the national central banks in proportion to their respective paid-up shares in the capital of the ECB. As at 31 December 2022, the Bundesbank had a 26.4% share in the fully paid-up capital of the ECB and, therefore, a 24.3% share of the euro banknotes in circulation in accordance with the banknote

1 As last published in Deutsche Bundesbank Notice No 10001/2022.
2 Decision of the European Central Bank of 13 December 2010 on the issue of euro banknotes (ECB/2010/29), as last amended by the Decision of the European Central Bank of 16 December 2022 (ECB/2022/46).

allocation key. The value of the Bundesbank's share in the total amount of euro banknotes issued by the Eurosystem is shown in item 1 "Banknotes in circulation" on the liabilities side of the balance sheet.

… of intra-Eurosystem balances arising from the allocation of euro banknotes

The difference between the value of the euro banknotes allocated to each central bank of the Eurosystem in accordance with the banknote allocation key and the value of the euro banknotes that the central bank actually puts into circulation gives rise to remunerated intra-Eurosystem balances.[3] If the value of the euro banknotes actually issued is greater than the value according to the banknote allocation key, the difference is recorded on the balance sheet as an intra-Eurosystem liability in liability sub-item 9.2 "Net liabilities related to the allocation of euro banknotes within the Eurosystem". If the value of the euro banknotes actually issued is less than the value according to the banknote allocation key, the difference is recorded in asset sub-item 9.3 "Net claims related to the allocation of euro banknotes within the Eurosystem". These balances are remunerated at the respective rate on the main refinancing operations.

In the year of the cash changeover and in the following five years, the intra-Eurosystem balances arising from the allocation of euro banknotes within the Eurosystem are adjusted in order to avoid significant changes in national central banks' relative income positions as compared to previous years. The adjustments are based on the difference between the average value of the banknotes that each national central bank had in circulation in the reference period and the average value of the banknotes that would have been allocated to each of them during that period in accordance with the ECB's capital key. The adjustments are reduced in annual increments until the first day of the sixth year after the cash changeover year. Thereafter, income from euro banknotes in circulation is allocated fully in proportion to the national central banks' paid-up shares in the ECB's capital. No such adjustment took place during the reporting year; the adjustment owing to the accession of the Croatian National Bank with effect from 1 January 2023 will run until 31 December 2028. The interest income and expense arising from the remuneration of the intra-Eurosystem balances is cleared through the accounts of the ECB and disclosed under item 1 "Net interest income" of the Bundesbank's profit and loss account.

ECB's interim profit distribution

The ECB's income from the 8% share of the euro banknotes in circulation as well as from securities purchased by the ECB as part of the securities markets programme (SMP), the third covered bond purchase programme (CBPP3), the asset-backed securities purchase programme (ABSPP) and the public sector purchase programme (PSPP) as well as the pandemic emergency purchase programme (PEPP) is distributed to the national central banks of the Eurosystem as interim profit in the same financial year in which the income arises, unless the ECB's net profit is less than this income or the Governing Council of the ECB decides to retain the amount for allocation to the ECB risk provision.[4] The ECB is not reporting any profit for financial year 2022, so no interim profit was distributed.

Change to the ECB's capital key with effect from 1 February 2020 and capital contributions with effect from 29 December 2021 and 28 December 2022

In anticipation of the withdrawal of the United Kingdom from the European Union, the ECB's capital key was adjusted with effect from 1 February 2020. This adjustment increased the Bundesbank's share in the ECB's subscribed capital from 18.4% to 21.4% and raised its participating interest in the ECB from a nominal €1,988 million to €2,321 million. The contribution of capital associated with this adjustment took place in three stages. With effect from 1 February 2020, the €58 million in paid-up capital repaid to the Bank of England was

3 Decision of the European Central Bank of 3 November 2016 on the allocation of monetary income of the national central banks of Member States whose currency is the euro (ECB/2016/36), as last amended by the Decision of the European Central Bank of 12 November 2020 (ECB/2020/55).
4 Decision of the European Central Bank of 15 December 2014 on the interim distribution of the income of the European Central Bank (recast) (ECB/2014/57), as last amended by the Decision of the European Central Bank of 12 November 2020 (ECB/2020/56).

redistributed, with a share of €11 million being allocated to the Bundesbank. Two further transfer payments, each in the amount of €610 million, were made on 29 December 2021 and 28 December 2022, with a share of €161 million being allocated to the Bundesbank in each case. This increased the participating interest in the ECB (asset sub-item 9.1) to a nominal €2,321 million and, including the Bundesbank's share of the ECB's net equity as at 1 February 2020 (in particular, the ECB's revaluation reserve and the ECB risk provision), to €2,578 million. As at 31 December 2022, the Bundesbank's share in the fully paid-up capital of the ECB amounts to 26.3615%.

Change in the ECB's capital key with effect from 1 January 2023

Effective 1 January 2023, the Eurosystem grew in size as a result of the accession of the Croatian National Bank, which thereupon paid up its capital share in the ECB in full. This reduced the Bundesbank's share in the fully paid-up capital of the ECB to 26.1494%.

Preparation and auditing of financial statements

The Executive Board prepared the Deutsche Bundesbank's financial statements for financial year 2022 on 14 February 2023. The financial statements were audited by Baker Tilly GmbH & Co. KG Wirtschaftsprüfungsgesellschaft (Düsseldorf), whom the Executive Board engaged as external auditors on 1 September 2020 in accordance with Section 26(3) of the Bundesbank Act. The auditors issued an unqualified audit opinion on 20 February 2023 confirming that the Bundesbank's financial statements for 2022 – consisting of the balance sheet and the profit and loss account – comply, in all material respects, with the legal requirements and the accounting policies of the Deutsche Bundesbank approved by the Executive Board and give a true and fair view of the net assets, financial position and results of operations of the Deutsche Bundesbank. After studying the external auditors' unqualified audit opinion, the Executive Board decided that publication of the financial statements would take place on 1 March 2023.

Notes on the individual balance sheet items

Assets

1 Gold and gold receivables

As at 31 December 2022, the Bundesbank's physical holdings (bars) of fine gold amounted to 3,355,168 kg, or 108 million fine ounces (ozf). These are supplemented by an additional 4 kg of gold receivables that were generated by the settlement of margins in the context of gold transactions. The gold was valued at the market price at the end of the year (1 kg = €54,851.58, or 1 ozf = €1,706.075). Compared with the previous year's price (1 kg = €51,746.08, or 1 ozf = €1,609.483), this represents an increase of 6.0%. The gold holdings declined by 0.1% (3,936 kg, or 0.1 million ozf) in the year under review. This was due to the sale of gold to the Federal Government at market prices for the purpose of minting gold coins. The resulting income of €193 million is shown in sub-item 2.1 "Realised gains/losses arising from financial operations" in the profit and loss account.

2 Claims on non-euro area residents denominated in foreign currency

This item comprises the receivables from the International Monetary Fund (IMF) as well as balances with banks and security investments, loans and other foreign currency claims on non-euro area residents.

2.1 Receivables from the IMF

Sub-item 2.1 contains the receivables from the IMF which are financed and held by the Bundesbank and which arise from the Federal Republic of Germany's membership of the IMF. The receivables, which total 46,375 million special drawing rights (SDRs) (€58,047 million), are made up of the drawing rights within the reserve tranche, the holdings of special drawing rights and loans under the New Arrangements to Borrow (NAB).

Gold reserves by storage location

Storage location	31.12.2022 Tonnes	31.12.2022 € million	31.12.2021 Tonnes	31.12.2021 € million	Year-on-year change Tonnes	%	€ million	%
Deutsche Bundesbank, Frankfurt	1,710	93,800	1,710	88,489	− 0	− 0.0	5,311	6.0
Federal Reserve Bank, New York	1,236	67,809	1,236	63,970	–	–	3,839	6.0
Bank of England, London	409	22,427	413	21,361	− 4	− 1.0	1,066	5.0
Total	3,355	184,036	3,359	173,820	− 4	− 0.1	10,216	5.9

Deutsche Bundesbank

The drawing rights within the reserve tranche correspond to the amounts actually paid to the IMF in gold, special drawing rights, foreign currency and national currency under the German quota. The drawing rights held in the reserve tranche represent the difference between the German quota of SDR 26,634 million (€33,338 million) and the euro balances amounting to €24,013 million (SDR 19,184 million) at the IMF's disposal at the end of the year. In 2022, these rose on balance by SDR 937 million to SDR 7,450 million (€9,326 million).

Special drawing rights – by means of which freely usable currencies as per the IMF definition can be obtained at any time – in the amount of SDR 37,587 million were allocated free of charge. A corresponding counterpart is shown as liability item 8 "Counterpart of special drawing rights allocated by the IMF". In 2022, the holdings of special drawing rights went up by SDR 1,184 million (€2,076 million).

The NAB are multilateral credit lines with the IMF, which serve as a backstop for use in the event of a systemic crisis. They were not activated by the IMF in 2022, which means that the

Receivables from the IMF

Item	31.12.2022 SDR million	31.12.2022 € million	31.12.2021 SDR million	31.12.2021 € million	Year-on-year change SDR million	%	€ million	%
German quota	26,634	33,338	26,634	32,917	–	–	421	1.3
less Euro balances	19,184	24,013	20,121	24,868	− 937	− 4.7	− 855	− 3.4
Drawing rights within the reserve tranche	7,450	9,326	6,513	8,050	937	14.4	1,276	15.8
Special drawing rights	38,801	48,567	37,617	46,491	1,184	3.1	2,076	4.5
New Arrangements to Borrow	123	154	304	376	− 181	− 59.4	− 221	− 58.9
Total	46,375	58,047	44,435	54,917	1,940	4.4	3,130	5.7

Deutsche Bundesbank

Bundesbank was not drawn upon. Following an extension of the term and the doubling of the size of the multilateral NAB at the beginning of 2021, the Bundesbank's credit line amounts to SDR 25.8 billion. At the end of the reporting year, this resulted in receivables from the IMF of SDR 123 million (€154 million) from earlier drawdowns. The new temporary bilateral credit line of €17.9 billion – likewise concluded at the beginning of 2021– additionally pledged by the Bundesbank to the IMF as a further backstop, was not drawn down as adequate IMF liquidity was available. There were, therefore, no receivables arising from bilateral loans at the end of the year.

If all items on the assets side and the liabilities side of the balance sheet are taken into account, the net holdings of special drawing rights amounted to SDR 8,788 million, compared with SDR 6,848 million in the previous year. Valuation is based on the reference rate of SDR 1 = €1.2517 (2021: SDR 1 = €1.2359) calculated by the ECB at the end of the year for all central banks participating in the Eurosystem.

2.2 Balances with banks and security investments, external loans and other external assets

Balances with banks and security investments, loans and other foreign currency claims reported under sub-item 2.2 amounted to €34,406 million as at the end of 2022, compared with €32,649 million in the previous year. These include, in particular, US dollar holdings in the amount of US$31,880 million (€29,889 million), representing an increase of US$195 million on the year. The sub-item also contains holdings in yen (¥202,614 million, equivalent to €1,440 million), Australian dollar (A$1,749 million, equivalent to €1,114 million), Canadian dollar (C$2,292 million, equivalent to €1,587 million) and Chinese yuan (renminbi) (2,091 million yuan, equivalent to €284 million), and a small amount of other currencies. The holdings are interest-bearing. The foreign currency holdings were valued at the respective end-of-year market rate.

3 Claims on euro area residents denominated in foreign currency

This item contains US$40 million (€38 million) of US dollar claims on credit institutions resulting from refinancing operations in the context of the standing swap agreement with the Federal Reserve Bank (Fed) (2021: €35 million). In order to carry out these operations, based on the swap agreement, the ECB receives US dollars from the Fed in return for euro; the ECB then allocates these to the national central banks, which pass them on to euro area credit institutions. The TARGET2 liabilities resulting from the swap transactions between the ECB and the Bundesbank lower the TARGET2 settlement balance shown in asset sub-item 9.4 "Other claims within the Eurosystem (net)".

Balances with banks and security investments, external loans and other external assets

Item	31.12.2022 € million	31.12.2021 € million	Year-on-year change € million	 %
Current account balances and overnight deposits	3,666	2,514	1,152	45.8
Fixed-term deposits and deposits redeemable at notice	4,632	3,311	1,321	39.9
Marketable securities				
Government bonds				
US dollar	18,676	19,934	– 1,258	– 6.3
Yen	307	314	– 7	– 2.3
Australian dollar	780	798	– 18	– 2.3
Canadian dollar	1,515	1,596	– 80	– 5.0
Chinese yuan (renminbi)	282	265	17	6.5
Supranational, sovereign and agency (SSA) bonds	4,352	3,748	604	16.1
Other	196	168	28	16.5
Total	34,406	32,649	1,758	5.4

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Net foreign exchange positions in selected currencies

Balance of all reported asset and liability items in foreign currency at market rates (net foreign exchange position) in	31.12.2022		31.12.2021		Year-on-year change
	Million (currency)	Market rate per euro	Million (currency)	Market rate per euro	Million (currency)
US dollar	32,011	1.0666	31,748	1.1326	262
Yen	202,713	140.66	203,179	130.38	−465
Australian dollar	1,756	1.5693	1,814	1.5615	− 58
Canadian dollar	2,299	1.4440	2,366	1.4393	− 68
Chinese yuan (renminbi)	2,115	7.3582	2,062	7.1947	53

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4 Claims on non-euro area residents denominated in euro

This item shows the loans amounting to €2,925 million granted to foreign central banks as part of the ECB's liquidity lines (2021: no holdings). These bilateral swap and repo lines cover the euro liquidity needs of financial institutions in non-euro area countries via their central banks. Claims on non-euro area counterparties arising from bilateral repo transactions amounting to €461 million (2021: no holdings) are also shown in this item. These claims resulted from reverse repos transacted simultaneously with repos, in which securities in the PSPP portfolio as well as PEPP public sector holdings are lent against Federal securities on a cash-neutral basis; the transactions have a maximum term of seven days. The corresponding liabilities from the repos are shown under liability item 5 "Liabilities to non-euro area residents denominated in euro".

5 Lending to euro area credit institutions related to monetary policy operations denominated in euro

The volume and structure of the liquidity-providing monetary policy operations carried out by the Bundesbank as part of the Eurosystem (main and longer-term refinancing operations and the marginal lending facility) are shown in this item. As at the end of the reporting year, the outstanding volume of the Eurosystem's monetary policy operations amounted to €1,324,347 million (2021: €2,201,882 million), of which the Bundesbank accounted for €237,502 million (2021: €421,985 million). Pursuant to Article 32.4 of the Statute of the ESCB, risks from these operations, provided they materialise, are shared among the Eurosystem national central banks in proportion to the prevailing shares in the capital of the ECB. Losses arise only if the counterparty to a monetary policy operation defaults and the collateral it has provided proves insufficient upon realisation. The national central banks may accept certain types of collateral excluded from risk sharing on their own responsibility.

Main refinancing operations are regular weekly transactions with a standard one-week maturity, the purpose of which is to provide liquidity. In the reporting year, main refinancing operations continued to be conducted as fixed rate tenders with full allotment. At the end of the year, the main refinancing operations amounted to €1,110 million, which was €810 million more than at the end of the previous year. On a daily average, the outstanding volume of main refinancing operations came to €334 million (2021: €74 million).

In the year under review, the regular longer-term refinancing operations with maturities of three months were carried out as fixed rate tenders with full allotment at the average main refinancing rate. As at 31 December 2022, take-up of these totalled €267 million (2021:

Lending to euro area credit institutions related to monetary policy operations denominated in euro

	31.12.2022	31.12.2021	Year-on-year change	
Item	€ million	€ million	€ million	%
Main refinancing operations	1,110	300	810	270.0
Longer-term refinancing operations				
Regular operations (3 months)	267	20	247	·
Targeted operations – third series (TLTRO III)	235,306	421,093	– 185,787	– 44.1
Pandemic emergency operations (PELTROs)	300	572	– 272	– 47.6
Subtotal	235,873	421,685	– 185,812	– 44.1
Marginal lending facility	519	0	519	·
Total	237,502	421,985	– 184,483	– 43.7

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€20 million). In addition, targeted longer-term refinancing operations from the third series (TLTRO III), which each have a term of three years, were carried out between September 2019 and December 2021. The interest on these operations is charged at an individual rate geared to the respective counterparty's eligible net lending. This rate lies between the average main refinancing rate and deposit facility rate prevailing over the life of the respective operation. In response to the COVID-19 crisis, the Governing Council of the ECB decided to lower the minimum interest rate over the period from 24 June 2020 to 23 June 2022 to 50 basis points below the deposit facility rate, but in any case to a maximum of -1%. Furthermore, the Governing Council decided on 27 October 2022 to index the interest rate on all outstanding TLTRO III operations to the average applicable key ECB interest rates over the period from 23 November 2022 until their maturity date or early repayment date and to offer three additional voluntary early repayment dates. After the maturing of the first two operations and early repayments in the reporting year, the outstanding volume at the end of the year totalled €235,306 million (2021: €421,093 million). Additional pandemic emergency longer-term refinancing operations (PELTROs) were also conducted in 2020 and 2021 as fixed rate tenders with full allotment at an interest rate that is 25 basis points below the average rate applied in main refinancing operations over the life of the respective PELTRO. As at 31 December 2022, take-up amounted to €300 million (2021: €572 million). The total volume of longer-term refinancing operations outstanding at year-end 2022 came to €235,873 million, which was €185,812 million below the figure at the end of 2021; on a daily average, the volume amounted to €399,759 million (2021: €411,600 million).

The marginal lending facility is a standing facility which counterparties may use to obtain overnight liquidity at a pre-specified interest rate. Recourse to this facility amounted to €519 million as at year-end 2022. Average daily use came to €12 million (2021: €6 million).

6 Other claims on euro area credit institutions denominated in euro

This item, amounting to €8,294 million (2021: €3,495 million), consists, in particular, of claims on euro area counterparties arising from bilateral repo transactions amounting to €6,296 million (2021: €3,495 million). These claims resulted from reverse repos transacted simultaneously with repos, in which securities in the PSPP portfolio as well as PEPP public sector holdings are lent against Federal securities on a cash-neutral basis; the transactions have a maximum term of seven days. The corresponding liabilities from the repos are shown under liability item 3 "Other liabilities to euro area credit institutions denominated in euro". This item also includes fixed-term deposits held at credit institutions amounting to €1,999 million (2021: no holdings), which arise from funds received in connection with central bank services (see liability item 5 “Liabilities to non-euro area residents denominated in euro”).

7 Securities of euro area residents denominated in euro

This item contains the holdings of securities denominated in euro resulting from purchases made within the framework of the Eurosystem purchase programmes announced by the ECB Governing Council, which are shown under sub-item 7.1 “Securities held for monetary policy purposes”. These holdings are carried at amortised cost, irrespective of whether the securities are held to maturity. Under the Governing Council’s decision of 9 June 2022, net asset purchases under the asset purchase programme (APP, with the individual sub-programmes CBPP3, PSPP, CSPP and ABSPP) were discontinued in the reporting year as of 1 July 2022. Furthermore, the ECB Governing Council decided on 18 March 2020 to launch a new temporary €750 billion pandemic emergency purchase programme (PEPP) until the end of 2020, covering all the assets eligible under the existing purchase programmes. The Governing Council’s decisions of 4 June 2020 and 10 December 2020 increased the overall envelope for the PEPP to a total of up to €1,850 billion, while its decision of 16 December 2021 reduced net asset purchases under the PEPP in the first quarter of 2022 and discontinued them at the end of March 2022. Maturing assets changed the composition of the terminated SMP, CBPP and CBPP2 purchase programmes, with CBPP and CBPP2 ending in the reporting year.

As at year-end, the Eurosystem national central banks’ SMP holdings amounted to €2,143 million (2021: €5,486 million), their CBPP3 holdings to €276,857 million (2021: €273,233 million), their CSPP holdings to €344,119 million (2021: €309,676 million) and their PSPP holdings of securities issued by supranational institutions (of which the Bundesbank itself did not acquire any holdings) to €275,228 million

Securities held for monetary policy purposes

Portfolio	31.12.2022		31.12.2021		Year-on-year change			
	Balance sheet value € million	Market value € million	Balance sheet value € million	Market value € million	Balance sheet value € million	%	Market value € million	%
Terminated purchase programmes								
SMP								
Portugal	15	15	15	17	0	1.4	– 1	– 7.7
Italy	–	–	230	232	– 230	– 100.0	– 232	– 100.0
SMP subtotal	15	15	244	249	– 230	– 93.9	– 233	– 93.9
CBPP	–	–	150	151	– 150	– 100.0	– 151	– 100.0
CBPP2	–	–	771	776	– 771	– 100.0	– 776	– 100.0
Terminated purchase programmes subtotal	15	15	1,165	1,175	– 1,151	– 98.7	– 1,160	– 98.7
APP								
CBPP3	77,764	69,119	74,412	74,686	3,352	4.5	– 5,567	– 7.5
PSPP	562,345	493,180	536,317	551,750	26,028	4.9	– 58,570	– 10.6
CSPP	79,051	69,450	72,113	73,083	6,939	9.6	– 3,634	– 5.0
APP subtotal	719,161	631,748	682,842	699,519	36,319	5.3	– 67,771	– 9.7
PEPP								
PEPP covered bonds	1,419	1,204	1,555	1,539	– 136	– 8.7	– 335	– 21.7
PEPP public sector securities	343,730	293,795	333,631	331,333	10,099	3.0	– 37,537	– 11.3
PEPP corporate sector securities	8,652	7,486	8,535	8,618	116	1.4	– 1,131	– 13.1
PEPP subtotal	353,800	302,486	343,720	341,489	10,080	2.9	– 39,003	– 11.4
Total	1,072,976	934,250	1,027,728	1,042,184	45,248	4.4	– 107,934	– 10.4

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(2021: €264,537 million). As at 31 December 2022, the Eurosystem national central banks' PEPP holdings amounted to €5,283 million in the covered bonds portfolio (2021: €5,377 million), to €46,074 million in the corporate sector portfolio (2021: €43,782 million) and to €145,687 million (2021: €130,590 million) in the portfolio of securities issued by supranational institutions (of which the Bundesbank itself did not acquire any holdings). Consistent with Article 32.4 of the Statute of the ESCB, all risks from the SMP, CBPP3, CSPP and the abovementioned PSPP and PEPP holdings, provided they materialise, are shared among the Eurosystem national central banks in proportion to the prevailing shares in the capital of the ECB, as is the case with the income received. Risks and income resulting from the government bonds purchased under the PSPP and PEPP (including regional government bonds and bonds issued by eligible agencies located in the euro area), on the other hand, are borne or are collected, respectively, by the individual national central banks holding these bonds. For its PSPP and PEPP public sector portfolio, the Bundesbank purchases only bonds issued by German issuers.

The Governing Council of the ECB decided that there was no need to recognise any impairment losses on securities contained in the SMP, CSPP, PSPP, CBPP3 and PEPP portfolios as at 31 December 2022, as it is expected that all payment obligations relating to the bonds and debt securities contained in Eurosystem central banks' holdings will continue to be met as agreed.

8 Claims on the Federal Government

This item shows the equalisation claims on the Federal Government and the non-interest-bearing debt register claim in respect of Berlin; both date back to the currency reform of 1948. They form the balance sheet counterpart of the amounts paid out at that time in cash per capita and per enterprise and of the initial provision of credit institutions and public corporations with central bank money. Equalisation claims yield interest at a rate of 1% per annum. In conjunction with Article 123 of the Treaty on the Functioning of the European Union (the Lisbon Treaty), it has been stipulated that the equalisation claims and the debt register claim are to be redeemed in ten annual instalments, starting in 2024.

9 Intra-Eurosystem claims

The Bundesbank's claims on the ECB and on the national central banks participating in the Eurosystem are consolidated in this item.

Sub-item 9.1 shows the Bundesbank's participating interest in the ECB. Pursuant to Article 28 of the Statute of the ESCB, the ESCB national central banks are the sole subscribers to the capital of the ECB. At the end of December 2022, as in the previous year, a capital contribution of €161 million was made following the adjustment to the key for subscription of the ECB's capital caused by the United Kingdom's withdrawal from the European Union and the Bank of England's related withdrawal from the ESCB in 2020 (see "General information on the annual accounts"). The Bundesbank's participating interest in the ECB amounted to a nominal €2,321 million as at 31 December 2022; including the Bundesbank's share of the ECB's net equity, effective from 1 February 2020, it came to €2,578 million.

Sub-item 9.2 contains the Bundesbank's euro-denominated claims equivalent to the transfer of foreign reserves to the ECB. At the beginning of 1999, the central banks participating in the Eurosystem transferred foreign reserve assets (15% in gold and 85% in foreign currency) to the ECB in accordance with Article 30 of the Statute of the ESCB. Adjustments to the key for subscription of the ECB's capital also result in adjustments to the Bundesbank's claims equivalent to the transfer of foreign reserves to the ECB. As at 31 December 2022, these claims amounted to €10,635 million, unchanged from the previous year. As the transferred gold does not earn any interest, the claims are remunerated at 85% of the prevailing main refinancing rate.

Sub-item 9.3 "Net claims related to the allocation of euro banknotes within the Eurosystem" shows the claims which arise from applying the euro banknote allocation key. As in 2021, the Bundesbank did not have a claim as at the end of 2022 but a liability, which is shown in liability sub-item 9.2 "Net liabilities related to the allocation of euro banknotes within the Eurosystem".

A daily net balance vis-à-vis the ECB is derived from settlement balances between the central banks of the ESCB which result from cross-border payments as recorded in the Eurosystem's TARGET2 high-value payment system. As at the end of the year, the Bundesbank's net claim on the ECB was €8,403 million higher at €1,269,076 million, which is contained in sub-item 9.4 "Other claims within the Eurosystem (net)". The net balance (with the exception of unremunerated intra-Eurosystem balances resulting from the swap transactions between the ECB and the Bundesbank – see asset item 3 "Claims on euro area residents denominated in foreign currency") is remunerated at the respective main refinancing rate. On a daily average, the remunerated net claim amounted to €1,193,119 million (2021: €1,068,351 million). This item also contains liabilities of €2,204 million arising from the allocation of monetary income among the national central banks (see profit and loss item 5 "Net result of pooling of monetary income").

10 Items in course of settlement

This item contains the asset items arising from payments still being processed within the Bundesbank.

11 Other assets

The Bundesbank's holdings of euro coins are shown in sub-item 11.1 "Coins". New coins are received from the Federal mints at their nominal value for the account of the Federal Government, which holds the coin prerogative.

Sub-item 11.2 "Tangible and intangible fixed assets" amounted to €863 million, compared with €897 million in the previous year. It comprises land and buildings, furniture and equipment including computer equipment, and software.

Sub-item 11.3 "Other financial assets" amounted to €10,003 million, compared with €11,621 million in the previous year. It contains the Bundesbank's own funds portfolio as a counterpart to its capital, statutory reserves and long-term provisions for civil servant pensions and healthcare assistance. The own funds portfolio is invested not in government securities but exclusively in fixed rate covered bonds denominated in euro, which are generally held to maturity and are, therefore, valued at amortised cost.

Tangible and intangible fixed assets

€ million

Item	Acquisition and production costs 31.12.2021	Additions	Disposals	Accumulated depreciation	Book value 31.12.2022	Book value 31.12.2021	Depreciation in 2022
Land and buildings	2,192	40	– 6	– 1,689	537	542	– 40
Furniture and equipment including computer equipment	1,132	72	– 49	– 836	320	346	– 98
Software	168	3	–	– 164	6	9	– 6
Total	3,492	115	– 55	– 2,689	863	897	– 143

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Own funds portfolio

Portfolio	31.12.2022 Balance sheet value € million	31.12.2022 Market value € million	31.12.2021 Balance sheet value € million	31.12.2021 Market value € million	Year-on-year change: Balance sheet value € million	Balance sheet value %	Market value € million	Market value %
Euro-denominated covered bonds issued in								
Germany	5,048	4,688	5,714	5,817	– 666	– 11.7	– 1,129	– 19.4
France	2,129	1,969	2,321	2,401	– 192	– 8.3	– 432	– 18.0
Finland	813	739	985	996	– 173	– 17.5	– 257	– 25.8
Netherlands	649	599	781	793	– 132	– 16.9	– 194	– 24.4
Belgium	330	295	329	337	1	0.2	– 42	– 12.5
Total	8,969	8,290	10,131	10,343	– 1,162	– 11.5	– 2,053	– 19.9

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This item also includes €51 million in participating interests held by the Bundesbank. The Bundesbank's participating interest in the Bank for International Settlements, Basel, was unchanged at €50 million as at the end of the year; it holds 50,100 shares, with 25% of their par value being paid-in capital. As in the previous year, the participating interest in the cooperative society S.W.I.F.T., La Hulpe (Belgium), amounted to €1 million.

Claims on euro area counterparties other than credit institutions arising from bilateral repo transactions amounting to €983 million (2021: €1,439 million) are also shown in this item. These claims are the result of reverse repos transacted simultaneously with repos, in which securities in the PSPP portfolio as well as PEPP public sector holdings are lent against Federal securities on a cash-neutral basis; the transactions have a maximum term of seven days. The corresponding liabilities from the repos are shown under liability sub-item 4.2 "Other liabilities".

Sub-item 11.4 "Off-balance-sheet instruments revaluation differences" essentially comprises the net loss from the valuation of the US dollar forward liabilities to the ECB arising from the euro/US dollar swap agreement with the ECB (see asset item 3 "Claims on euro area residents denominated in foreign currency"). As in the previous year, only a slight net loss occurred at the close of 2022.

Sub-item 11.5 "Accruals and prepaid expenditure" contains accruals and prepaid expenditure as at 31 December 2022. This chiefly consists of (accrued) coupon interest due in the new financial year from securities which were acquired or transacted in the financial year just ended.

Liabilities

1 Banknotes in circulation

The total value of euro banknotes issued by the central banks of the Eurosystem is distributed among these banks on the last business day of each month in accordance with the key for allocating euro banknotes (see "General information on the annual accounts"). According to the banknote allocation key applied as at 31 December 2022, the Bundesbank has a 24.3% share of the value of all the euro banknotes in circulation. During the year under review, the total value of banknotes in circulation within the Eurosystem rose from €1,544.4 billion to €1,572.0 billion, or by 1.8%. Taking into account the allocation key, the Bundesbank had euro banknotes in circulation worth €381,257 million as at the end of the year, compared with €374,552 million a year previously.

The value of the euro banknotes actually issued by the Bundesbank increased in 2022 by 1.8% from €884,392 million to €900,109 million. As this was more than the allocated amount, the difference of €518,852 million (2021: €509,840 million) is shown in liability sub-item 9.2 "Net liabilities related to the allocation of euro banknotes within the Eurosystem".

2 Liabilities to euro area credit institutions related to monetary policy operations denominated in euro

Sub-item 2.1 "Current accounts" contains the deposits of credit institutions, amounting to €66,583 million (2021: €902,096 million), which are also used to meet the minimum reserve requirement and to settle payments. The main criterion for including these deposits in this sub-item is that the relevant counterparties appear in the list of institutions which are subject to the Eurosystem's minimum reserve regulations. The balances held to fulfil the minimum reserve requirement amounted to €43,943 million on an annual average. In the reporting year, these balances were remunerated at the average main refinancing rate up until 20 December 2022 and subsequently, in accordance with the ECB Governing Council's decision of 27 October 2022, at the average deposit facility rate in the respective maintenance period. Since September 2022, deposits in excess of the minimum reserve requirement have not been remunerated; the previous two-tier system for calculating remuneration (balances amounting to a multiple, set by the Governing Council of the ECB, of a credit institution's minimum reserve requirements are exempt from negative remuneration; negative interest at the rate applicable to the deposit facility is applied only to the non-exempt excess reserve holdings) was suspended after the deposit facility rate was raised to above 0%. On a daily average, total current account deposits consequently declined from €1,025,011 million in 2021 to €807,856 million in 2022.

Sub-item 2.2 "Deposit facility", amounting to €1,132,287 million (2021: €233,948 million), contains overnight deposits remunerated at the deposit facility rate. On a daily average, the deposit facility increased to €533,846 million from €199,539 million in the previous year owing to shifts from sub-item 2.1 "Current accounts".

Sub-item 2.5 "Deposits related to margin calls" contains cash collateral deposited by credit institutions in order to increase underlying assets. As at 31 December 2022, this item contained holdings of €1,184 million (2021: €2,186 million).

3 Other liabilities to euro area credit institutions denominated in euro

This item contains, in particular, liabilities to euro area credit institutions arising from bilateral repo transactions cleared centrally via Eurex. In these transactions, securities in the PSPP portfolio as well as PEPP public sector holdings are lent against cash as collateral, or in the case of simultaneous reverse repos, against Federal securities on a cash-neutral basis; the transactions have a maximum term of seven days. As at the end of the year, securities lending against cash as collateral gave rise to liabilities in the amount of €13,942 million (2021: €18,913 million), and securities lending against Federal securities resulted in liabilities of €6,296 million (2021: €3,495 million); the corresponding claims are reported in asset item 6 "Other claims on euro area credit institutions denominated in euro". This item also includes account balances of credit institutions in the amount of €241 million (2021: €3,958 million), which are exempt from minimum reserve requirements due to the imposition of freezing orders. In addition, this item contains liabilities in the amount of €810 million (2021: €606 million) arising from account balances pledged for deposit protection pursuant to the Deposit Guarantee Act (*Einlagensicherungsgesetz*) in conjunction with the Regulation on the Financing of the Compensation Scheme (*Entschädigungseinrichtungs-Finanzierungsverordnung*).

4 Liabilities to other euro area residents denominated in euro

Sub-item 4.1 "General government deposits" encompasses the balances of the Federal Government, its special funds, the state governments, the European Stability Mechanism (ESM), the European Financial Stability Facility (EFSF) and other public depositors (social security funds and local governments). On 31 December 2022, general government deposits amounted to €132,215 million in all (2021: €246,658 million). On a daily average, the volume amounted to €170,603 million (2021: €199,610 million).

Sub-item 4.2 "Other liabilities" amounted to €45,418 million, compared with €52,239 million a year earlier. It mainly comprises deposits of other financial service providers. In addition, liabilities to euro area counterparties other than credit institutions arising from bilateral repo transactions were included in this sub-item as at 31 December 2022. In these repo transactions, securities in the PSPP portfolio as well as PEPP public sector holdings are lent against cash as collateral, or in the case of simultaneous reverse repos, against Federal securities on a cash-neutral basis; the transactions have a maximum term of seven days. As at the end of the year, securities lending against cash as collateral gave rise to liabilities in the amount of €1,269 million (2021: €2,179 million), and securities lending against Federal securities resulted in liabilities of €983 million (2021: €1,439 million); the corresponding claims are reported in asset sub-item 11.3 "Other financial assets". On a daily average, the sub-item amounted to €54,410 million (2021: €19,715 million).

5 Liabilities to non-euro area residents denominated in euro

This balance sheet item, amounting to €333,608 million (2021: €404,339 million), contains the balances of non-euro area central banks, monetary authorities, international organisations and commercial banks held, inter alia, to settle payments. On a daily average, the volume amounted to €216,055 million (2021: €133,730 million). As at 31 December 2022, deposits of €311,930 million were attributable to non-euro area central banks and monetary authorities, of which €115,920 million was attributable to central banks within the European Union. This item also includes fixed-term deposits of central banks accepted as part of the Bundesbank's central bank services amounting to €1,999 million (2021: no holdings), which are then invested in the money market (see asset item 6 "Other claims on euro area credit institutions denominated in euro"). Liabilities to non-euro area counterparties arising from bilateral repo transactions are also recorded in this item. In these repo transactions, securities in the PSPP portfolio as well as PEPP public sector holdings are lent against cash as collateral, or in the case of simultaneous reverse repos, against Federal securities on a cash-neutral basis; the transactions have a maximum term of seven days. As at the end of the year, securities lending against cash as collateral gave rise to liabilities in the amount of €7,939 million (2021: €10,208 million), and securities lending against Federal securities resulted in liabilities of €461 million (2021: no liabilities); the corresponding claims are reported in asset item 4 "Claims on non-euro area residents denominated in euro".

6 Liabilities to euro area residents denominated in foreign currency

This item contains, in particular, deposits on foreign currency accounts of the Federal Government.

7 Liabilities to non-euro area residents denominated in foreign currency

Foreign currency-denominated liabilities to banks outside the euro area are recorded in this item. These are liabilities in US dollars which have arisen from repos. As in the previous year, this item contained no holdings as at 31 December 2022.

8 Counterpart of special drawing rights allocated by the IMF

The counterpart of the special drawing rights (SDRs) allocated by the IMF free of charge corresponds to the allocations of SDRs to the Federal Republic of Germany from 1970 to 1972, from 1979 to 1981, in 2009 and in 2021, which together totalled SDR 37,587 million (see asset sub-item 2.1 "Receivables from the IMF").

9 Intra-Eurosystem liabilities

The Bundesbank's liabilities to the ECB and to the other central banks participating in the Eurosystem are consolidated in this item.

Sub-item 9.1 contains "Liabilities related to the issuance of ECB debt certificates". The ECB issued no debt certificates in 2022.

Sub-item 9.2 "Net liabilities related to the allocation of euro banknotes within the Eurosystem" contains the liabilities arising from the application of the euro banknote allocation key (see liability item 1 "Banknotes in circulation"). As at the end of the year, these liabilities amounted to €518,852 million in total (2021: €509,840 million). The 8% share of the total value of euro banknotes in circulation attributable to the ECB (€1,572.0 billion) resulted in a liability of €33,153 million for the Bundesbank (according to its capital share of 26.4%). In addition, the difference between the Bundesbank's actual banknote issuance of €900,109 million and its notional share (again according to the capital share) in the allocation of the remaining 92% of euro banknotes in circulation to the balance sheets of the national central banks resulted in a liability of €485,699 million. The reason for the size of this liability was the Bundesbank's still disproportionately high share of banknote issuance (57.3%), which is largely due to net outflows of banknotes to other countries.

The net liabilities arising from other assets and liabilities within the Eurosystem would be shown in sub-item 9.3 "Other liabilities within the Eurosystem (net)". As at the end of 2022, the Bundesbank had a net claim, which is shown on the assets side under sub-item 9.4 "Other claims within the Eurosystem (net)" and outlined there.

10 Items in course of settlement

This item contains the liability items arising from payments still being processed within the Bundesbank.

11 Other liabilities

As at the end of 2022, as in the previous year, no holdings were reported under sub-item 11.1 "Off-balance-sheet instruments revaluation differences". These holdings are shown in asset sub-item 11.4.

Sub-item 11.2 "Accruals and income collected in advance" contains the accrued and collected income as at 31 December 2022. This consists mainly of (accrued) interest expenses which are due in future financial years but were incurred in previous financial years in connection with the negative remuneration of credit institutions' refinancing (TLTRO III).

Sub-item 11.3 "Sundry" mainly comprises the liabilities arising from Deutsche Mark banknotes still in circulation. Deutsche Mark banknotes are no longer legal tender. However, the Bundesbank has publicly undertaken to redeem Deutsche Mark banknotes that are still in circulation for an indefinite period. The Deutsche Mark banknotes still in circulation belong to the series BBk I/Ia and BBk III/IIIa and as at the end of 2022 totalled €2,922 million. The banknote series BBk I/Ia accounted for €1,179 million of this total and the banknote series BBk III/IIIa €1,743 million. In 2021, part of the liabilities arising from Deutsche Mark BBk III/IIIa series banknotes still in circulation and amounting to €1,296 million was derecognised and taken to profit and loss item 6 "Other income", as it is virtually certain that claims are no longer to be expected for this partial amount. This approach was based on the partial derecognition of Deutsche Mark banknotes belonging to the BBk I/Ia series in 2004. Taking into account these partial derecognitions and the deposits that have been made in the meantime, the liability arising from the Deutsche Mark banknotes still in circulation amounted to €446 million (2021: €461 million) as at the balance sheet date. Deposits of Deutsche Mark banknotes in 2022 totalled €19 million, of which €14 million consisted of the BBk III/IIIa series banknotes and €5 million of the BBk I/Ia series banknotes (see profit and loss item 11 "Other expenses").

12 Provisions

The provisions for general risks are created pursuant to the regulations governing the Bundesbank's annual accounts laid down in Section 26(2) of the Bundesbank Act. They are established to hedge against general risks associated with domestic and foreign business. The level of funds to be allocated to the provisions for general risks is reviewed annually using value-at-risk and expected shortfall calculations, amongst others. These calculations consider the holdings of risk-bearing assets, their risk content, foreseeable changes to the risk situation, expected financial conditions in the coming year and the statutory reserves (€2.5 billion). The Bundesbank's risks, which are determined using a model-based approach, relate, in particular, to exchange rate risk, default risk from the asset purchase programmes and credit risk arising from refinancing loans as well as interest rate risk. Since the beginning of 2020, the risk level has increased strongly due to the pandemic. The main reason for the increase was higher interest rate risk and credit risk stemming from the APP and from the PEPP, which was launched in March 2020. The Bundesbank did not distribute any profits in 2020 and 2021 as the strong increase in risk made it necessary to build up risk provisioning as much as possible. As a first step, €2,424 million was therefore added to the provisions for general risks in 2020, and a further €1,346 million was added in 2021 as a second step. In the reporting year, there was a reduction of €972 million owing to the materialisation of interest rate risk in foreign currency and euro; the provisions for general risks thus amounted to €19,199 million as at 31 December 2022. The risk assessment does not take account of the risks arising from the Bundesbank's TARGET2 claim on the ECB and from the issuance of euro banknotes. The Bundesbank could hypothetically be affected (in the case of the TARGET2 claim, only indirectly as an ECB shareholder) by the risk to which the Eurosystem would be exposed if a euro area country were to leave the single currency area and its central bank failed to settle its TARGET2 liability to the ECB or its banknote liabilities to the ECB (8% share) and the national central banks. It considers this scenario to be unlikely to materialise, however, which means that credit risk arising from Eurosystem liquidity-providing operations is ultimately the main risk factor.

Provisions for post-employment benefit obligations (direct pension commitments and indirect pension commitments as a result of the Bundesbank's obligation to act as guarantor for pension payments out of the supplementary pension funds for public sector employees) as well as for healthcare subsidy commitments to civil servants are valued on the basis of actuarial expert opinions prepared using current mortality tables (Heubeck 2018 G mortality tables) according to the entry age normal method (*Teilwertverfahren*) (for current staff) and the present value method (*Barwertverfahren*) (for pensioners and ex-civil servants with portable pension entitlements), taking into account discount rates and trends. The discount rate used for post-employment benefit obligations is, in each case, a matched-maturity average market interest rate for the past ten years or, for healthcare subsidy commitments to civil servants, for the past seven years pursuant to the Regulation on the Discounting of Provisions (*Rückstellungsabzinsungsverordnung*).

Provisions

	31.12.2022	31.12.2021	Year-on-year change	
Provisions for	€ million	€ million	€ million	%
General risks	19,199	20,171	−972	− 4.8
Direct pension commitments	7,253	6,861	391	5.7
Indirect pension commitments (supplementary pension funds for public sector employees)	715	692	23	3.3
Healthcare subsidy commitments to civil servants	1,950	1,774	176	9.9
Partial retirement scheme	17	17	− 0	− 1.0
Staff restructuring schemes	21	31	− 10	−31.8
Other	94	91	2	2.3
Total	29,248	29,637	−389	− 1.3

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Pursuant to Section 253(6) of the Commercial Code, the amount saved by applying the ten-year rather than the seven-year period for calculating the average market interest rate for post-employment benefit obligations is subject to a restriction on distribution. In 2021, the ten-year rate (1.98%) and the seven-year rate (1.44%) resulted in an interest margin of 54 basis points, representing a difference of €713 million. In 2022, the interest margin came to 39 basis points (1.82% versus 1.43%), which resulted in a lower saving of €541 million.

Provisions for the partial retirement scheme and for payment commitments arising from staff restructuring schemes that had already been carried out as at the reporting date are valued based on actuarial expert opinions prepared using current mortality tables according to the present value method, or according to the entry age normal method in the case of the outstanding settlement amount for the partial retirement scheme, taking into account discount rates and trends. The discount rate is based on a matched-maturity average market interest rate for the past seven years pursuant to the Regulation on the Discounting of Provisions.

The other provisions are created for remaining holiday entitlement, overtime worked and positive balances of flexible working hours and long-term working hours accounts as well as for other uncertain liabilities.

Expenses in the amount of €388 million from marking up the provisions (including the effects of the change in the discount rates) are contained in profit and loss sub-item 1.2 "Interest expense". Profit and loss item 7 "Staff costs" shows a net allocation of €236 million, with a total allocated amount of €497 million standing against a total utilisation of €261 million. Other changes in provisioning gave rise, on balance, to relief of €13 million in profit and loss item 11 "Other expenses" and to an allocation of €3 million in profit and loss item 8 "Administrative expenses". The reversal of provisions resulted in income of €32 million in profit and loss item 6 "Other income".

13 Revaluation accounts

This item contains the disclosed hidden reserves from the initial valuation at the time of the changeover to market valuation as at 1 January 1999 (revaluation items "old") and the unrealised gains arising from market valuation as at 31 December 2022 (revaluation items "new").

Revaluation items "old"

A revaluation item "old" now remains only for gold. This item represents the difference between the market value of gold as at 1 January

Discount rates and trends

Parameter	31.12.2022 %	31.12.2021 %
Discount rate for post-employment benefit obligations	1.82	1.98
Discount rate for comparable long-term staff obligations (healthcare subsidy commitments to civil servants)	1.43	1.44
Discount rate for short-term staff obligations (partial retirement scheme and staff restructuring schemes)	0.41	0.30
Wage trend	2.25	2.25
Career trend	0.50	0.50
Cost trend for healthcare subsidy commitments to civil servants	3.25	3.00
Pension trend for direct pension commitments	2.25	2.25
Pension trend for supplementary pension funds for public sector employees	1.00	1.00

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Revaluation accounts

Item	Revaluation items "old"	Revaluation items "new"	Total as at 31.12.2022	Total as at 31.12.2021	Year-on-year change	
	€ million	€ million	€ million	€ million	€ million	%
Gold	18,645	157,460	176,105	165,880	10,225	6.2
US dollar	–	4,957	4,957	3,883	1,074	27.6
SDR	–	437	437	375	62	16.5
Yen	–	35	35	149	− 114	− 76.8
Australian dollar	–	35	35	43	− 9	− 20.1
Canadian dollar	–	113	113	128	− 15	− 11.9
Chinese yuan (renminbi)	–	22	22	29	− 7	− 23.1
Securities in foreign currency	–	9	9	241	− 232	− 96.1
Total	18,645	163,068	181,712	170,729	10,983	6.4

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1999 and the lower book value of gold prior to that date. On the balance sheet as at 31 December 1998, the book value for gold was 1 ozf = DEM 143.8065 (€73.5271), while the market value as at 1 January 1999 was 1 ozf = €246.368. Although the valuation gains arising from the initial valuation of the gold holdings are not eligible for distribution, they will be released under certain circumstances. Besides being released in the case of valuation losses on the gold position, a proportionate release will also take place in the event of net reductions if the end-of-year gold holdings are below their lowest end-of-year level since 1999.

The reduction of 3,936 kg, or 0.1 million ozf, in the gold holdings resulted in the release of €22 million in the year under review, which was taken to profit and loss sub-item 2.1 "Realised gains/losses arising from financial operations".

Revaluation items "new"

The revaluation items "new" show, for the gold holdings, the net positions in each foreign currency and the securities portfolios in each category of security (securities identification number), the positive difference in each case between the market value on 31 December 2022 and their value at average amortised cost since 1 January 1999.

As regards gold, this acquisition cost is 1 ozf = €246.369. As at the end of 2022, the market value of the gold position exceeded its acquisition value, leading to a revaluation item of €157,460 million (2021: €147,213 million). In the case of the net foreign exchange positions in US dollars, SDRs, Japanese yen, Canadian dollars, Australian dollars and Chinese yuan (renminbi), the market values at year-end were also above their acquisition values (€1 = US$1.2777, €1 = SDR 0.8318, €1 = ¥144.12, €1 = C$1.5540, €1 = A$1.6192 and €1 = 7.9792 yuan, respectively), resulting in revaluation items.

As at 31 December 2022, valuation gains on foreign currency-denominated securities amounted to €9 million. However, for the vast majority of foreign currency-denominated securities, the relevant acquisition values were higher than their corresponding market values on the reporting date, resulting in valuation losses of €922 million (see profit and loss sub-item 2.2 "Write-downs on financial assets and positions"). In principle, securities denominated in euro are carried at amortised cost. Marking to market would result in valuation losses of €139,411 million (2021: €5,614 million), mostly from government bonds held for monetary policy purposes (PEPP public sector securities and PSPP) and valuation gains of €6 million (2021: €20,283 million).

14 Capital and reserves

In accordance with Section 2 of the Bundesbank Act, the Bank's capital, amounting to €2.5 billion, is owned by the Federal Republic of Germany. As in the previous year, the statutory reserves pursuant to the Bundesbank Act are at the fixed upper limit of €2.5 billion laid down in Section 27 No 1 of the Bundesbank Act. The difference arising from the discounting of post-employment benefit obligations, which is subject to a restriction on distribution pursuant to Section 253(6) of the Commercial Code (see "General information on the annual accounts", liability item 12 "Provisions" and profit and loss item 12 "Allocation to/withdrawal from reserves owing to the restriction on distribution pursuant to Section 253(6) of the German Commercial Code (*Handelsgesetzbuch*)"), decreased to €541 million. Since this non-distributable amount was €172 million lower than the level of (other) reserves in the previous year, a withdrawal from reserves in this amount was made as at the end of financial year 2022; (other) reserves therefore amounted to €541 million, compared with €713 million in 2021.

The Bundesbank's net equity according to the ECB's definition amounted to €206.5 billion and includes the provisions for general risks of €19.2 billion contained in liability item 12 "Provisions", liability item 13 "Revaluation accounts" of €181.7 billion and the capital and reserves of €5.5 billion in total.

15 Distributable profit

The profit and loss account for 2022 closed with a loss for the year of €172 million (2021: loss of €7 million). A withdrawal of €172 million was made from (other) reserves on account of the restriction on distribution pursuant to Section 253(6) of the Commercial Code (2021: €7 million; see "General information on the annual accounts", liability item 12 "Provisions" and profit and loss item 12 "Allocation to/withdrawal from reserves owing to the restriction on distribution pursuant to Section 253(6) of the German Commercial Code (*Handelsgesetzbuch*)"), resulting in a balanced financial result overall.

Notes on the profit and loss account

1 Net interest income

This item shows interest income, net of interest expense. Net interest income was higher than in the previous year, rising by €1,453 million to €3,954 million. Net interest income in foreign currency was up by €495 million owing to higher yields, while net interest income in euro rose by €958 million, partly on account of higher interest income from monetary policy portfolios. The remuneration of deposits of credit institutions and the negative interest rates on refinancing operations gave rise to an interest expense of €4,087 million, compared with interest income of €752 million in the previous year.

1.1 Interest income

Interest income in foreign currency rose from €303 million in 2021 to €1,366 million in 2022 owing to higher yields. Interest income in euro increased by €3,696 million year on year to €10,712 million. The remuneration of credit institutions' deposits resulted in a net interest expense owing to key interest rate hikes. As from July 2022, the first time since 2016 that the main refinancing rate was raised to over 0%, interest income was accrued again, in the amount of €7,298 million, from the remuneration of the TARGET2 claim on the ECB. Securities held for monetary policy purposes gave rise to interest income of €2,788 million on balance, compared with €101 million in the previous year. Income relating to the terminated purchase programmes (CBPP/CBPP2, which ended in the reporting year, and SMP) fell by €162 million to a total of €9 million on account of the annual average decrease in holdings as securities

Net interest income

Item	2022	2021	Year-on-year change	
	€ million	€ million	€ million	%
Interest income in foreign currency				
IMF	694	18	676	·
Reverse repo transactions	64	1	64	·
Securities	540	282	258	91.5
Other	67	3	64	·
Subtotal	1,366	303	1,062	350.2
Interest income in euro				
Deposits of credit institutions (negative interest)	–	4,756	– 4,756	·
TARGET2 claim on the ECB	7,298	–	7,298	·
Monetary policy portfolios	2,788	101	2,687	·
of which: Inflation-linked Federal bonds	3,074	768	2,306	300.1
Claims arising from the transfer of foreign reserves to the ECB	53	–	53	·
Own funds portfolio (financial assets)	59	72	– 13	– 18.1
Euro balances of domestic and foreign depositors (negative interest)	362	1,938	– 1,575	– 81.3
Repo transactions (negative interest)	95	100	– 5	– 4.9
Other	55	49	6	13.3
Subtotal	10,712	7,016	3,696	52.7
Total interest income	12,077	7,319	4,758	65.0
Interest expense in foreign currency				
IMF	578	14	564	·
Repo transactions	2	–	2	·
Other	1	0	1	201.2
Subtotal	581	14	567	·
Interest expense in euro				
Refinancing operations (negative interest)	2,045	4,003	– 1,958	– 48.9
Deposits of credit institutions	2,042	–	2,042	·
Liabilities arising from the allocation of euro banknotes	3,035	–	3,035	·
Claims arising from central bank services (negative interest)	6	22	– 17	– 74.2
Marking up of staff provisions	388	752	– 364	– 48.4
Euro balances of domestic and foreign depositors	26	–	26	·
Reverse repo transactions (negative interest)	1	26	– 25	– 95.3
Other	0	0	– 0	– 29.3
Subtotal	7,543	4,804	2,739	57.0
Total interest expense	8,124	4,818	3,306	68.6
Net interest income	3,954	2,501	1,453	58.1

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reached maturity. Income from the APP portfolios (CBPP3, PSPP and CSPP portfolios) increased by €1,991 million to €3,098 million, particularly owing to the inflation-linked bonds in the PSPP portfolio, which yielded far better results thanks to the higher inflation rate in 2022. The PEPP portfolios gave rise to lower negative interest of -€319 million, compared with -€1,177 million in the previous year, likewise due in particular to the inflation-linked bonds in the PEPP public sector portfolio. Given reduced holdings and an average interest rate of 0.62% (2021: 0.69%), the Bundesbank's own funds portfolio saw its interest income contract by €13 million. Interest income arising from (the negative remuneration of) euro balances of domestic and foreign depositors was down by €1,575 million on balance owing to higher key interest rates. Repo transactions (see liability item 3 "Other liabilities to euro area credit institutions denominated in euro", liability sub-item 4.2 "Other liabilities" and liability item 5 "Liabilities to non-euro area residents denominated in euro") resulted in interest income of €95 million (2021: €100 million).

1.2 Interest expense

There was a year-on-year increase of €3,306 million to €8,124 million in interest expense. As regards monetary policy refinancing operations, the lower interest expense of €2,045 million, compared with €4,003 million in 2021, stemmed from the higher key interest rates and, in the case of TLTRO III, also from the end of the lowering of the minimum interest rate as of 23 June 2022 (deposit facility rate minus 50 basis points) and the ECB Governing Council's decision to recalibrate the interest rates from 23 November 2022 (see asset item 5 "Lending to euro area credit institutions related to monetary policy operations denominated in euro"). Owing to the key interest rate hikes, the remuneration of credit institutions' deposits gave rise, on balance, to an interest expense of €2,042 million (2021: interest income from negative remuneration in the amount of €4,756 million). As from July 2022, the first time since 2016 that the main refinancing rate was raised to over 0%, an expense was incurred again, in the amount of €3,035 million, for the remuneration of intra-Eurosystem balances related to the allocation of euro banknotes (see "General information on the annual accounts"). Expenses arising from the marking up of staff provisions (see liability item 12 "Provisions") decreased by €364 million owing to the lower reduction in the discount rate (16 basis points compared with 40 basis points in 2021). The reverse repos transacted simultaneously with the bilateral repo transactions (see asset item 4 "Claims on non-euro area residents denominated in euro", asset item 6 "Other claims on euro area credit institutions denominated in

Interest from monetary policy portfolios

	2022	2021	Year-on-year change	
Portfolio	€ million	€ million	€ million	%
SMP	3	142	−139	−97.9
CBPP and CBPP2	6	29	− 23	−79.4
CBPP3	230	150	81	54.0
PSPP	2,295	524	1,771	338.0
CSPP	573	434	139	32.1
PEPP covered bonds	− 1	− 2	1	30.5
PEPP public sector	−374	−1,221	847	69.4
PEPP corporate sector	56	46	10	22.0
Total	2,788	101	2,687	.

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Net result of financial operations, write-downs and risk provisions

Item	2022 € million	2021 € million	Year-on-year change € million	Year-on-year change %
Realised gains/losses				
Gold	193	158	35	22.3
Foreign currency	634	206	428	207.8
Securities	−825	15	−839	·
Subtotal	2	378	−376	− 99.3
Write-downs				
Foreign currency	− 0	− 0	− 0	−229.8
Securities	−922	− 161	−761	−472.4
Subtotal	−922	− 161	−761	−472.4
Transfer to/from provisions for general risks	972	−1,346	2,318	·
Total	53	−1,129	1,182	·

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euro" and asset sub-item 11.3 "Other financial assets") resulted in an interest expense of €1 million (2021: €26 million).

2 Net result of financial operations, write-downs and risk provisions

Realised net income from foreign currency transactions reported in sub-item 2.1, mainly arising from US dollar transactions (€614 million), increased due to exchange rate movements. Realised losses from sales of securities, particularly US Treasury notes (-€747 million; 2021: realised gains of €7 million), was mainly explained by the increase in US capital market yields.

Write-downs in sub-item 2.2 chiefly resulted, as in 2021, from valuation losses on US Treasury notes owing to the increase in US capital market yields.

Sub-item 2.3 "Transfer to/from provisions for general risks" contains the reduction in provisions for general risks by €972 million to offset losses due to the materialisation of interest rate risk in foreign currency and euro (see liability item 12 "Provisions").

3 Net income from fees and commissions

Net income from fees and commissions came to €55 million, compared with €60 million in the previous year.

4 Income from participating interests

This item contains the Bundesbank's income of €28 million (2021: €172 million) from its participating interests in the ECB, the BIS and S.W.I.F.T. Of this, €11 million (2021: €101 million) was attributable to the ECB's distribution of the remainder of the profit for financial year 2021; the ECB is not reporting a profit for financial year 2022 (2021: interim profit distribution of €40 million). An additional €17 million (2021: €31 million) came from BIS dividends.

5 Net result of pooling of monetary income

This item comprises expenditure of €2,204 million in 2022 (2021: €1,179 million).

Monetary income of the Eurosystem national central banks is pooled in accordance with a decision taken by the Governing Council of the ECB.[5] Since 2003, the amount of monetary income allocated to each national central bank has been measured on the basis of the actual income that derives from the earmarked assets that each holds as a counterpart to its liability base.

The liability base contains, in particular, the following items: liability item 1 "Banknotes in circulation", liability item 2 "Liabilities to euro area credit institutions related to monetary policy

5 Decision of the European Central Bank of 3 November 2016 on the allocation of monetary income of the national central banks of Member States whose currency is the euro (ECB/2016/36), as last amended by the Decision of the European Central Bank of 12 November 2020 (ECB/2020/55).

operations denominated in euro", liability sub-item 9.2 "Net liabilities related to the allocation of euro banknotes within the Eurosystem" and the TARGET2 net liability contained in liability sub-item 9.3 "Other liabilities within the Eurosystem (net)". All interest paid on these items decreases the amount of monetary income to be transferred by the national central bank concerned. In 2022, the Bundesbank's deduction amount was €5,077 million.

A national central bank's earmarked assets consist mainly of the following items: asset item 5 "Lending to euro area credit institutions related to monetary policy operations denominated in euro", asset sub-item 7.1 "Securities held for monetary policy purposes", asset sub-item 9.2 "Claims equivalent to the transfer of foreign reserves to the ECB", asset sub-item 9.3 "Net claims related to the allocation of euro banknotes within the Eurosystem", the TARGET2 net claim contained in asset sub-item 9.4 "Other claims within the Eurosystem (net)" and a limited amount of the national central banks' gold holdings corresponding to their share in the fully paid-up capital of the ECB. It is assumed that no income is generated from the gold and that the covered bonds purchased under the CBPP and CBPP2 as well as the government bonds (including regional government bonds and bonds issued by eligible agencies located in the euro area) purchased under the PSPP and PEPP generate income commensurate with the applicable main refinancing rate, as the ECB Governing Council has ruled out the possibility of pooling the risk and returns arising from these instruments among the national central banks. The Bundesbank's arithmetical interest income was €11,473 million in total for 2022.

If the value of a national central bank's earmarked assets exceeds or falls short of the value of its liability base, the difference is offset by applying the main refinancing rate to the value of the difference. For the Bundesbank, the value of its earmarked assets in 2022 exceeded the value of its liability base; applying the main refinancing rate on a daily basis, this gave rise to a deduction item of €2,326 million. At the end of each financial year, the total monetary income transferred by all national central banks is allocated to the national central banks in proportion to their respective shares in the fully paid-up capital of the ECB. The transfer and allocation can cause redistribution effects among the national central banks under two conditions in practice. First, earmarked assets or liabilities as part of the liability base must have an interest rate that is different from the main refinancing rate (such as, for instance, the excess reserves remunerated at the deposit facility rate or TLTRO III operations remunerated at individual

Net income from fees and commissions

Item	2022 € million	2021 € million	Year-on-year change € million	%
Income				
Cashless payments	28	27	2	6.0
Cash payments	6	6	0	1.4
Securities business and security deposit business	50	50	− 0	− 0.2
Other	30	31	− 1	− 3.7
Subtotal	113	113	0	0.4
Expense				
Securities business and security deposit business	50	44	6	13.2
Other	9	9	0	3.7
Subtotal	59	53	6	11.6
Total	55	60	− 6	− 9.4

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rates and the remuneration of monetary policy portfolios, provided the Governing Council of the ECB has not ruled out the possibility of pooling the risk and returns arising from these securities among the national central banks). Second, the pro rata share of these earmarked assets or liabilities on the balance sheet of the respective national central bank must be higher or lower than its share in the ECB's capital. For example, the Bundesbank's average share of the Eurosystem's total TLTRO III holdings, at around 18.9%, is well below the Bundesbank's capital share of 26.4%; the resultant disproportionately high interest expenses of the other national central banks are balanced out via the common pool of monetary income. The PSPP/PEPP holdings of bonds from supranational issuers, of which the Bundesbank has not purchased any holdings itself, give rise to low interest only; this lower income is also balanced out via the common pool of monetary income.

On aggregate, the pooling of monetary income resulted in a net expense of €2,204 million for the Bundesbank (2021: €1,179 million). This balance represents the difference between the €4,096 million (2021: €1,528 million) in monetary income paid by the Bundesbank into the common pool, including €26 million in adjustments for the previous year due to the updating of TLTRO III interest accrued, and the Bundesbank's claim of €1,893 million (2021: €349 million) – corresponding to the Bundesbank's share of the ECB's paid-up capital – on the common pool.

6 Other income

Other income amounted to €126 million, compared with €1,535 million in 2021. The decrease of €1,409 million was the result of a one-off effect in the previous year, specifically the partial derecognition of Deutsche Mark banknotes of the BBk III/IIIa series amounting to €1,296 million (see liability sub-item 11.3 "Sundry"). An amount of €53 million (2021: €65 million) was attributable to the contributions of the Eurosystem national central banks to the costs of developing and running Eurosystem services, €32 million (2021: €29 million) to the reversal of provisions (see liability item 12 "Provisions"), €21 million (as in 2021) to rental income, and €3 million (2021: €1 million) to proceeds from the sale of land and buildings.

7 Staff costs

Staff costs rose from €1,068 million to €1,239 million year on year. Expenditure on post-employment benefits was €162 million higher on balance owing to increased transfers to staff provisions in particular. This was due chiefly to the increase in the cost trend in the provision for healthcare subsidy commitments to civil servants from 3.0% to 3.25% owing to higher expenses for healthcare subsidy commitments. Excluding transfers to staff provisions, staff costs rose by 1.0%. This was attributable to the general pay rises for salaried staff and civil servants.

The remuneration received by each member of the Executive Board is published in the Annual Report in accordance with item 9 of the "Code of Conduct for the members of the Executive Board of the Deutsche Bundesbank". For 2022, the President of the Bundesbank received a pensionable salary of €403,091.67, special non-pensionable remuneration of €75,415.55 and a standard expenses allowance of €5,030.49, amounting to a total of €483,537.71. The Vice-President of the Bundesbank received a pensionable salary of €327,688.23, special non-pensionable remuneration of €61,355.03 and a standard expenses allowance of €3,067.80, amounting to a total of €392,111.06 for 2022. The other members of the Executive Board each received a pensionable salary of €245,766.30, special non-pensionable remuneration of €46,016.27 and a standard expenses allowance of €2,556.48, amounting to a total of €294,339.05 each for the year 2022.

Total remuneration payments to serving and former members of the Executive Board, former members of the Bundesbank's Directorate and of the Executive Boards of the Land Central

Staff costs

Item	2022	2021	Year-on-year change	
	€ million	€ million	€ million	%
Salaries and wages	671	662	9	1.4
Social security contributions	94	94	1	0.8
Expenditure on post-employment benefits	474	312	162	51.8
Total	1,239	1,068	171	16.0

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Banks, including their surviving dependants, amounted to €10,925,978.38 in 2022.

8 Administrative expenses

Administrative expenses increased from €579 million in 2021 to €662 million. This item shows not only operating expenditure but also, in particular, expenditure of €266 million on computer hardware and software (2021: €231 million) and of €158 million on office buildings (2021: €115 million) as well as expenditure of €49 million on Eurosystem services (2021: €63 million).

9 Depreciation of tangible and intangible fixed assets

Depreciation of land and buildings, of furniture and equipment including computer equipment and of software amounted to €143 million, compared with €153 million in 2021 (see asset sub-item 11.2 “Tangible and intangible fixed assets”).

10 Banknote production services

Expenditure on banknote production services declined by €16 million year on year to €113 million in the reporting year.

11 Other expenses

Other expenses amounted to €26 million (2021: €38 million) and contained, in particular, expenditure on residential buildings amounting to €19 million and expenditure on the encashment of the BBk I/Ia series Deutsche Mark banknotes, which are no longer shown on the balance sheet, in the amount of €5 million (see liability sub-item 11.3 “Sundry”).

In 2022, the Bundesbank’s donations totalled €637,119.06, including €308,424.33 for research projects, €132,277.73 for other specific projects, €98,917.00 for scholarships and prize money, and €47,500.00 for institutional financial assistance.

12 Allocation to/withdrawal from reserves owing to the restriction on distribution pursuant to Section 253(6) of the German Commercial Code (Handelsgesetzbuch)

Pursuant to Section 253(6) of the Commercial Code, the relief of €541 million resulting from application of the ten-year rather than the seven-year period for calculating the average market interest rate at which to discount post-employment benefit obligations is subject to a restriction on distribution (see “General information on the annual accounts”, liability item 12 “Provisions” and liability item 14 “Capital and reserves”). Since this non-distributable amount was €172 million lower than the level of the relevant reserves at the close of 2021, a withdrawal from reserves in this amount was made as at the end of financial year 2022 (2021: withdrawal of €7 million).

Annex

The Deutsche Bundesbank: key figures

Staff[1]	2021	2022
Core staff (full-time equivalents)	10,383	10,294
– Contraction since 31 December 2001[2]	4,417 (= 29.8%)	4,523 (= 30.5%)

Locations/core staff (full-time equivalents)[1]	2021	2022
Central Office	1 / 5,347	1 / 5,405
Regional offices	9 / 2,697	9 / 2,667
Branches	31 / 2,338	31 / 2,223

Annual accounts[1]	2021	2022
Distributable profit	–	–
Net interest income	€2,501 million	€3,954 million
Total assets	€3,011,124 million	€2,903,591 million
Foreign reserve assets (total)	€261.4 billion	€276.5 billion
– Foreign currency	€32.6 billion	€34.4 billion
– Receivables from the IMF	€54.9 billion	€58.0 billion
– Gold	(3,359 t) €173.8 billion	(3,355 t) €184.0 billion
Allocation across the various storage locations		
Frankfurt	(1,710 t) €88.5 billion	(1,710 t) €93.8 billion
New York	(1,236 t) €64.0 billion	(1,236 t) €67.8 billion
London	(413 t) €21.4 billion	(409 t) €22.4 billion

ECB capital key[1]	2021	2022
Share of subscribed capital	21.4394%	21.4394%
Share of paid-up capital	26.3615%	26.3615%
Amount of the participating interest in the ECB	€2.16 billion	€2.32 billion
Foreign reserve assets transferred to the ECB	€10.64 billion	€10.64 billion

Monetary policy operations[1]	2021	2022
Open market operations in the euro area		
– Main refinancing operations	€0.39 billion	€2.406 billion
– Longer-term refinancing operations[3]	€2,201.50 billion	€1,321.4 billion
of which counterparties of the Bundesbank	€421.69 billion	€235.9 billion
– Banks participating in refinancing operations (total) / of which via the Bundesbank	975 / 650	769 / 512
Standing facilities		
– Marginal lending facility in the euro area	€0	€0.5 billion
– Deposit facility in the euro area	€779.60 billion	€3,778.8 billion
Asset purchase programmes (Bundesbank's share)[1]		
CBPP3 portfolio	€74.4 billion	€77.8 billion
PSPP portfolio	€536.3 billion	€562.3 billion
CSPP portfolio	€72.1 billion	€79.1 billion
PEPP public sector portfolio	€333.6 billion	€343.7 billion
PEPP corporate sector portfolio	€8.5 billion	€8.7 billion
PEPP covered bonds portfolio	€1.6 billion	€1.4 billion

1 As at 31 December. **2** Core staff (full-time equivalents) on 31 December 2001 (year before the structural reform began): 14,800. **3** Including targeted longer-term refinancing operations (TLTROs), excluding US dollar tenders.

Cash payments	2021	2022
Volume of euro banknotes in circulation (Eurosystem)[1]	€1,544.4 billion	€1,572.0 billion
Volume of coins in circulation (Eurosystem)[1]	€31.2 billion	€32.5 billion
Returned DEM banknotes and coins	DEM 48.3 million	DEM 53.5 million
Unreturned DEM banknotes and coins	DEM 12.35 billion	DEM 12.30 billion

Incidence of counterfeit money in Germany	2021	2022
Euro banknotes (number)	41,200	44,145
Euro coins (number)	41,100	73,400

Cashless payments	2021	2022
Payments via the Bundesbank (number of transactions)	6,891.1 million	7,273.5 million
of which via RPS	6,762.9 million	7,128.5 million
of which via TARGET2-BBk	125.7 million	142.4 million
– payment transactions in T2 and TIPS	51.1 million	68.3 million
– settlement of securities transactions in T2S	74.6 million	74.1 million
Payments via the Bundesbank (value)	€254.5 trillion	€295.2 trillion
of which via RPS	€4.2 trillion	€4.3 trillion
of which via TARGET2-BBk	€249.3 trillion	€288.6 trillion
– payment transactions in T2 and TIPS	€184.6 trillion	€221.3 trillion
– settlement of securities transactions in T2S	€64.6 trillion	€67.4 trillion
Share of TARGET2-BBk transactions in EU-wide TARGET2 system (number of payment transactions)	52.2%	51.7%

Banking supervision	2021	2022
Number of institutions supervised	2,917	2,858
On-site inspections[4]	193	154

Cooperation with foreign central banks	2021	2022
Training and advisory events	245	186
– Number of participants (total)	3,922	3,284
– Number of participating countries (total)	97	94

Selected publications	2021	2022
Annual Report[5]	1	1
Financial Stability Review[5]	1	1
Monthly Report	12	12
Statistical Series[5]	104	104
Research Centre discussion papers[5]	56	52
Technical papers[5]	13	4
Publications in academic journals	86	89

External communication/public relations	2021	2022
Visitors to the Money Museum[4]	11,089	31,426
Economic education events / number of participants[4]	1,173 / 31,871	1,781 / 47,839
Written answers to queries	14,074	16,029
Press releases	470	469
Training sessions on counterfeit prevention / number of participants[4]	170 / 2,900	1,400 / 27,000

4 Due to the COVID-19 pandemic, some in-person events, museum visits and inspection activities only took place to a limited extent in 2021 and 2022. **5** Later versions may only be available in electronic form.

Branches of the Deutsche Bundesbank on 31 December 2022

Locality number	Bank location	Locality number	Bank location
720	Augsburg	810	Magdeburg
		550	Mainz
100	Berlin	700	Munich
480	Bielefeld		
		150	Neubrandenburg
870	Chemnitz	760	Nuremberg
370	Cologne		
		280	Oldenburg
470	Dortmund	265	Osnabrück
820	Erfurt	750	Regensburg
		640	Reutlingen
500	Frankfurt am Main	130	Rostock
680	Freiburg		
		590	Saarbrücken
260	Göttingen	600	Stuttgart
200	Hamburg	630	Ulm
250	Hanover		
		694	Villingen-Schwenningen
660	Karlsruhe		
570	Koblenz	790	Würzburg
860	Leipzig		
545	Ludwigshafen		

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Staff of the Deutsche Bundesbank on 31 December 2022*

Item	Staff numbers[1]				Year-on-year changes			
	Total	Regional offices	Branches	Central Office	Total	Regional offices	Branches	Central Office
Civil servants	6,224	1,648	848	3,728	17	38	-57	36
Salaried staff	5,658	1,356	1,577	2,725	-126	-71	-73	18
Total	11,882	3,004	2,425	6,453	-109	-33	-130	54
of which: trainees	750	92	18	640	-24	-13	1	-12
Remainder: core staff	11,132	2,912	2,407	5,813	-85	-20	-131	66
Memo item: core staff pro rata (full-time equivalents)	10,294.3	2,666.6	2,222.7	5,405.0	-88.3	-30.4	-115.5	57.6

	End-2022	End-2021
* Not included:		
Members of staff on secondment	101	79
Members of staff on unpaid leave	247	262
Members of staff in the second phase of the partial retirement scheme	117	81
1 Of which: part-time employees	3,017	2,949
Of which: staff with temporary contracts	171	247

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