Financial markets

Financial market setting

Financial markets price rising inflation rates and less accommodative monetary policy into valuations

Mounting inflation concerns and the war against Ukraine shaped developments in global financial markets in recent weeks. Given higher inflation rates and expectations, bond market yields rose markedly worldwide, also against the backdrop of key central banks pushing to recalibrate monetary policy. For example, the UK and US central banks further tightened their monetary policy stance by repeatedly raising their policy rates.[1] In addition, the Federal Reserve announced that, starting in June 2022, it would reduce its securities holdings purchased under monetary policy purchase programmes. The Bank of Japan, by contrast, pledged to stick to its yield curve control policy. The war against Ukraine added to the inflation concerns that had already been worrying market participants, not least on account of the considerably higher energy prices, and ultimately also stoked expectations of a faster adjustment of the monetary policy stance. Moreover, the war increased uncertainty surrounding the economic outlook. This culminated in growing financial market volatility and a sharp but brief slump in stock prices. Significantly stronger headwinds on the stock exchanges came from the higher interest rate level. Overall, European and US stocks have declined substantially in value in the year to date. In foreign exchange markets, the feared economic consequences of the war and expectations concerning differences in the pace of monetary policy adjustment in the major currency areas pushed down the euro's exchange rate.

Exchange rates

On balance, euro suffers significant exchange rate losses against US dollar, …

While the euro had fluctuated around the US$1.13 mark at the start of the year without showing any clear trend, this changed abruptly with the Russian invasion of Ukraine. First, price volatility in the foreign exchange markets increased markedly. Second, the currencies of countries in relatively close geographical proximity to the war or that have relatively close trade links with Russia, e.g. due to importing energy sources such as oil and gas, tended to come under downward pressure. The euro also depreciated significantly against the US dollar because it was expected that the economic impact of the war and the sanctions imposed against and on the table for the Russian Federation would hit the euro area harder than they would the United States. At the same time, the US dollar benefited from its status as a safe haven currency.

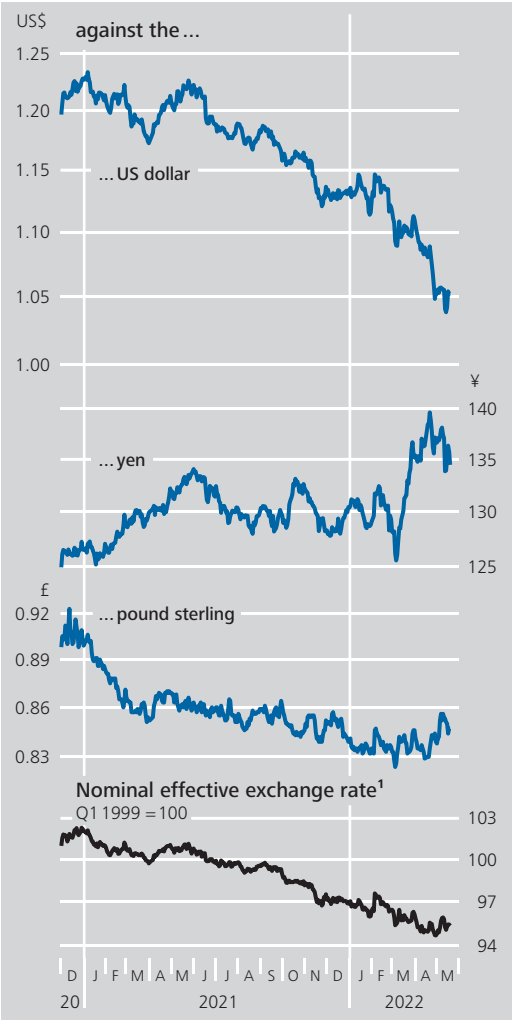
The euro's exchange rate stabilised temporarily in March. This was supported by signals from ECB representatives to possibly raise key interest rates earlier than expected. Moreover, the euro benefited from vague hopes of a negotiated solution in the war against Ukraine. However, the monetary policy decisions made by the ECB Governing Council in March did not have a lasting impact on the euro/US dollar exchange rate; although the prospect of concluding asset purchases in the third quarter was raised, it was left open as to when there might be a key interest rate turnaround in the euro area.

In April, signals from the Federal Reserve that it planned to accelerate the monetary policy normalisation process in the United States led once again to considerable exchange rate losses for the euro. As a result of the associated speculation about a growing divergence in monetary policy stances on both sides of the Atlantic, the euro fell to a five-year low of less than US$1.04, but stabilised again more recently. As this report went to press, the euro stood at US$1.05. It has thus depreciated by 7.1% against the US currency since the end of December 2021.

1 For information on the ECB Governing Council's measures, see p. 24.

Exchange rate of the euro

Daily data, log scale



Sources: ECB and Bundesbank calculations. **1** Calculated against the currencies of 19 countries. A rise in values indicates an appreciation of the euro.

Deutsche Bundesbank

… but appreciates slightly against pound sterling …

Despite four policy rate hikes in the United Kingdom since December of last year, the euro recorded slight net gains against the pound sterling. These were largely the result of the market reaction to the Bank of England's latest monetary policy meeting. As expected, it decided to raise its base rate (Bank Rate) to 1%. At the same time, however, it pointed to a medium-term decline in the inflation rate resulting from the economic downturn, which, according to its forecast, is likely to be greater than expected by market participants. In their view, this, in turn, has increased the likelihood of a less steep interest rate path, which put pressure on the pound sterling. Recently, however, the publication of robust labour market data for the United Kingdom again resulted in a countermovement. As this report went to press, the euro was trading at £0.85, around 0.8% higher than at the end of December.

… and markedly against yen

On balance, the yen has depreciated markedly across the board since the start of the year, although it temporarily benefited from the high degree of uncertainty in the financial markets. For a time, the euro recorded a five-year high against the yen, while the US dollar even hit a 20-year high. One key reason for the yen's losses was the Bank of Japan's renewed commitment in March to maintaining its ultra-loose monetary policy stance in view of lower domestic inflation rates rather than following in the footsteps of other central banks and changing its monetary policy course. As a result of the widening interest rate differential between the yen and other major currencies, the yen became even more attractive as a funding currency for carry trades, which generally reduced its value.[2] As this report went to press, the euro was trading at ¥134. It was thus some 3.1% above its value at the end of December.

Euro down in effective terms

Measured as a weighted average against the currencies of 19 major trading partners, the euro has depreciated by 1.6% net since the end of December. Losses were recorded against the US dollar and the currencies of numerous commodity-exporting countries, which benefited from higher commodity prices. This contrasted with gains against the yen, the pound sterling and the currencies of some central and eastern European countries that are even more directly affected by the war in Ukraine than the euro area. On balance, the price competitiveness of euro area suppliers improved over the period under review, but looking at the long-term average, their competitive position can still be considered neutral.

2 See Deutsche Bundesbank (2014).

Securities markets and portfolio investment

Bond market

Ten-year government bond yields up globally

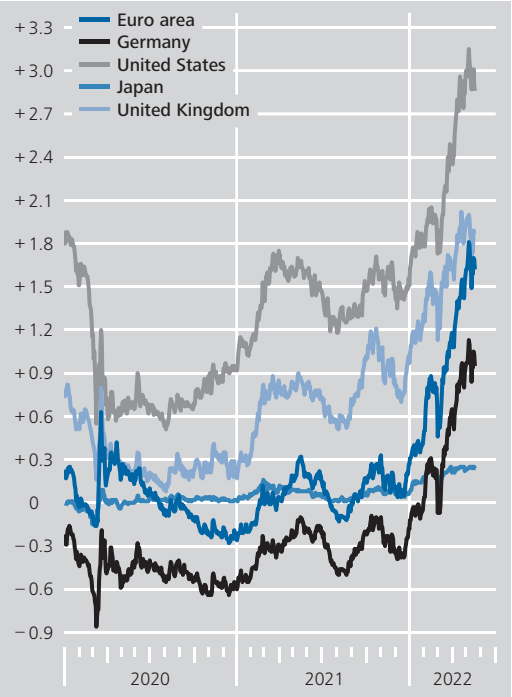
Nominal government bond yields have risen very significantly in the major currency areas since the start of the year. This was the government bond markets' response to rising inflation figures, market participants' higher inflation expectations and the prospect of a less expansionary monetary policy stance. Yields on international benchmark bonds fell temporarily when the war first broke out in Ukraine owing to higher demand for safe haven assets. However, given the rising inflation figures worldwide, they quickly resumed their upward trend. The Federal Reserve contributed to higher yields, particularly in the US bond market, as it repeatedly responded to inflationary pressures with monetary policy tightening measures. In view of this, yields on ten-year US Treasuries increased especially significantly, rising by 135 basis points to 2.9%. Analyses of the US Treasury yield curve show that market participants expect a significantly steeper interest rate path over the next two years, too, than they did at the start of the year. In addition, higher term premia – the amount investors demand as compensation for assuming interest rate risk when purchasing long-term bonds – also contributed to the increase in US Treasury yields. Real term premia, which can also reflect increased cyclical risks, are currently the dominant yield component.

Government bond yields up significantly in United Kingdom and slightly in Japan

In the United Kingdom, the yields on ten-year gilts rose by 90 basis points to 1.9%. The Bank of England continued to tighten its monetary policy in view of persistently high inflation rates. By contrast, the Bank of Japan continued to maintain its strongly accommodative monetary policy stance and its ten-year government bond yield target of close to 0%, countering the international interest rate trend. It announced in February that it would aim to keep yields at no more than 0.25% by offering unlimited bond buying. The yield on ten-year

Bond yields* in the euro area and selected countries

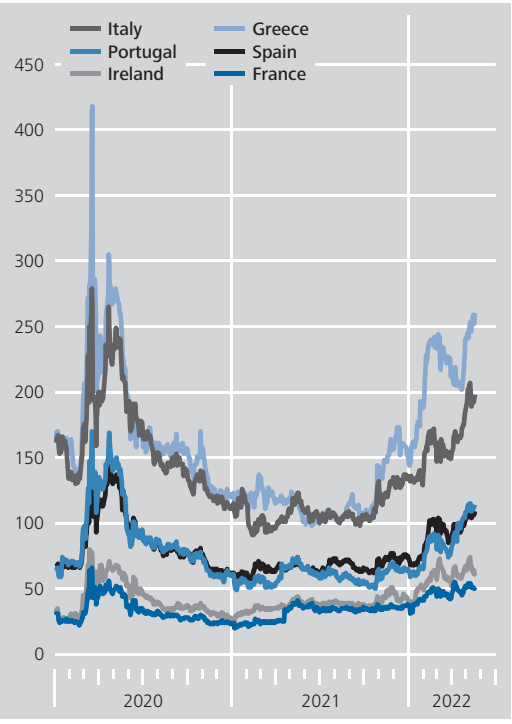
% p.a., daily data



Source: Bloomberg. * Government bonds with a residual maturity of ten years.
Deutsche Bundesbank

Spreads of ten-year government bonds over German Federal bonds

Basis points, daily data



Sources: Bloomberg and Bundesbank calculations.
Deutsche Bundesbank

Holder structure and free float of Federal securities

The market for Federal securities plays a key role in the international bond market. Thanks to their high credit quality and liquidity, German government bonds have become an important benchmark for the prices of other financial market instruments in the euro area and shape the euro area's spot and futures markets. Federal securities typically have a very broad investor base. Demand for German government bonds comes from a wide range of sectors in Germany as well as other countries, both inside and outside Europe. In this context, Federal securities play an essential role in the reserve assets of foreign central banks.

In March 2015, for monetary policy reasons, the Eurosystem began to buy Federal securities in the secondary market as part of the public sector purchase programme (PSPP). This caused the established holder structure to shift in favour of the Eurosystem. Up to the beginning of 2020, these shifts were relatively strong, as the Federal Government's net issuance was close to zero during this period. In net terms, the increase in the Eurosystem's holdings therefore led to a corresponding decrease in the holdings of other investors.

Given the much gloomier economic outlook and the feared risks to price stability following the outbreak of the coronavirus pandemic, in March 2020 the Governing Council of the European Central Bank (ECB) approved an additional purchase programme – the pandemic emergency purchase programme (PEPP), which likewise included government debt securities. In the second quarter of 2020, the German Federal Government also adopted extensive fiscal measures which were largely financed through the capital market. Since the beginning of the pandemic, on balance, central government's net issuance has exceeded the Eurosystem's net purchase volumes of Federal securities.

This box illustrates the changes in the holder structure of Federal securities.[1] To this end, we compare the current figures on holder structure (December 2021) with the data from prior to the launch of the PSPP (December 2014) and from before the outbreak of the coronavirus pandemic (December 2019). It becomes clear that the holder structure has shifted considerably under the purchase programmes. The stock of freely tradable bonds, the free float, initially fell both in absolute terms as well as in relation to the outstanding volume. This has changed since the outbreak of the pandemic. While in relative terms, the free float continued to fall steadily to almost 30% at the end of the period under review, in absolute terms it initially rose again and has hovered at just over €500 billion since then.

Reference dataset

The holder structure of Federal securities can be examined in detail on the basis of the European Securities Holdings Statistics by Sector (SHSS), which are collected in the Eurosystem.[2] The SHSS capture both the proprietary and customer securities holdings of all reporting account-keeping institutions in the euro area. The SHSS do not include the holdings of the ECB or the euro area national central banks. Combined with the Bundesbank's holdings, which can be extracted from the Bank's internal accounts, just over 97% of the total outstanding volume of Federal securities was captured at the end of 2021 and assigned to the sector and country of the respective holder ac-

1 For more information on the holder structure of Federal securities, see also Deutsche Bundesbank (2018).
2 See Deutsche Bundesbank (2015).

Holder structure of Federal securities*

Holdings in € bn/%

Item	2014		2019		2021	
	€ bn	%	€ bn	%	€ bn	%
Geographical breakdown						
Germany (incl. Bundesbank)	123.1	10.4	393.0	33.4	767.5	46.3
Euro area excl. Germany	220.1	18.5	173.6	14.8	222.5	13.4
Non-euro area countries	669.2	56.3	512.0	43.5	621.5	37.5
Not recorded	176.6	14.9	97.2	8.3	46.3	2.8
Sectoral breakdown						
Private sector						
Germany	70.5	5.9	50.6	4.3	44.6	2.7
Financial investors	59.2	5.0	47.0	4.0	40.1	2.4
of which: MFIs (banks)	17.1	1.4	7.9	0.7	5.0	0.3
Investment funds	34.0	2.9	28.9	2.5	24.5	1.5
Insurance corporations and pension funds	7.4	0.6	9.9	0.8	10.5	0.6
Non-financial investors	11.3	1.0	3.5	0.3	4.4	0.3
Euro area excl. Germany	212.1	17.8	170.4	14.5	216.9	13.1
Financial investors	207.7	17.5	168.6	14.3	214.2	12.9
of which: MFIs (banks)	36.2	3.0	– 0.5	0.0	– 0.9	– 0.1
Investment funds	83.7	7.0	76.8	6.5	101.1	6.1
Insurance corporations and pension funds	83.4	7.0	92.0	7.8	113.0	6.8
Non-financial investors	4.4	0.4	1.8	0.1	2.7	0.2
Non-euro area countries	350.7	29.5	301.2	25.6	346.3	20.9
Public sector (central bank and general government)						
Total (all countries)	379.1	31.9	556.5	47.3	1,003.7	60.5
of which: Bundesbank (PSPP and PEPP)	0.0	0.0	277.4	23.6	559.3	33.7
Total outstanding volume	1,188.9	100.0	1,175.8	100.0	1,657.7	100.0

Sources: ESCB (SHSS database), Finance Agency and Bundesbank calculations. * Holdings at year-end based on nominal values. Securities issued by FMS Wertpapiermanagement and central government's off-budget entities are not included. The figures for "euro area excl. Germany" do not contain any own holdings of the ECB or the euro area national central banks. The figures contain own holdings of the Finance Agency.

Deutsche Bundesbank

cording to the reporting template.[3] On the basis of changes in holdings as shown in the SHSS, it is possible to deduce which investor groups were net buyers or sellers in the market.[4]

Holder structure

Under the PSPP, the Bundesbank built up holdings of Federal securities of just under €280 billion by the end of 2019. The ongoing and additional purchases under the PEPP saw these holdings rise to just under €560 billion by the end of 2021, which is roughly equivalent to 34% of the total outstanding volume. As the Eurosystem only makes purchases in the secondary market, the question arises as to who was the net seller in the market.[5]

The SHSS data show that, since the end of 2014, investors from non-euro area countries have scaled back their holdings of Federal securities by €48 billion to just over €620 billion. This represents a decline of just under 19 percentage points in the respective outstanding volume to 37.5%.[6] Private investors from the United States and

3 The calculations are based on all outstanding Federal securities, ranging from six and twelve-month treasury discount paper (Bubills) to 30-year Federal bonds (Bunds). The Finance Agency's own holdings are also included.

4 Because the calculations are based on changes in holdings, the terms "purchases" and "sales" are always taken to include the redemptions of maturing Federal securities.

5 For more information about the structure of the monetary policy purchase programmes, see https://www.bundesbank.de/en/tasks/monetary-policy/outright-transactions/outright-transactions-626094.

6 The dominant role played by sellers from non-euro area countries is also reflected in aggregate PSPP purchases. For more information, see Koijen et al. (2021).

the United Kingdom sold just under €60 billion worth of Federal securities, which equates to a 9 percentage point decline in the share of the total outstanding volume. The sellers were probably mainly financial sector players whose decision to sell may have been chiefly driven by the low yields on Federal bonds.[7] By contrast, China's public sector (central bank and general government) acted as a net buyer, purchasing just under €50 billion in Federal securities in total. However, owing to the higher total outstanding volume, this represents a slight percentage decline in the share to just under 13% at the end of the period under review. It is noteworthy that China's public sector was a net seller in the market when the PSPP was launched, but upped its holdings again after 2019.[8] Unlike for private investors, currency policy considerations, above all, are likely to have played a key role here.

Since the end of 2014, private investors from the euro area have reduced their holdings of Federal securities by €21 billion. Measured in terms of the total outstanding volume, this decline comes to around 8 percentage points. Within the sector, financial investors constituted the largest investor group.[9] Investment funds and euro area banks as a whole reduced their holdings by €41.5 billion, or just over 6.5 percentage points in terms of the share of outstanding volume. It is striking that banks almost completely dissolved their holdings. In the euro area excluding Germany, they even recently built up a small net short position on aggregate. As is the case for private investors from non-euro area countries, this may have been largely driven by developments in German government bond yields. Moreover, euro area banks have access to the deposit facility, which can be a cheaper safe alternative to Federal securities and is not open to other investors. Euro area insurance corporations and pension funds are another major investor group. Unlike other financial investors, they temporarily increased their holdings of Federal securities, probably not least in connection with regulatory requirements. On balance, at just under 7.5% (€124 billion), the share of the outstanding volume of Federal bonds held by insurance corporations and pension funds from Germany and the rest of the euro area has remained virtually unchanged since the end of 2014. Recently, insurance corporations and pension funds surpassed even investment funds as the largest investor group among financial investors.

Free float

Free float normally refers to the holdings of an issuance that are freely available for trading. It is different to the stock held by investors that purchase bonds and then hold them to maturity. These "buy and hold" investors include, for example, central banks, insurance corporations and pension funds. A large volume of bonds in free float facilitates tradability and allows new, relevant information to be priced in under competitive conditions. The size of the free float can be stated both in absolute amounts and as a percentage of the total outstanding volume.

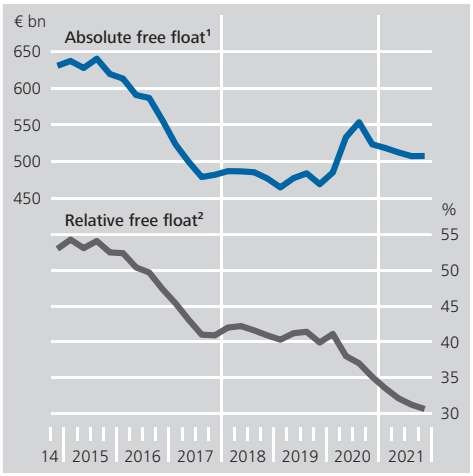
Although there is no uniform definition of the free float, based on the available data, it can be approximated for the purpose of this analysis using the sum of the private sector holdings excluding insurance corporations and pension funds.

---

7 The financial centres of London and New York, where many institutional investors that hold German securities on behalf of clients are resident, also have a bearing on the figures for the United Kingdom and United States. In these cases, the SHSS data shed no light on the end investor. The SHSS data for non-euro area countries cannot be broken down in more detail, for example by financial and non-financial investors.
8 See also Deutsche Bundesbank (2017).
9 This more detailed sectoral breakdown is available only for euro area investors (see the table on p. 41). Investors from non-euro area countries can only be broken down into public sector (central bank and general government) and non-public sector.

Under the PSPP, the stock of freely tradable Federal securities declined in both absolute and percentage terms up to the end of 2019, falling by just over €160 billion to just under €470 billion, or by just over 13 percentage points to just under 40%. This changed after the outbreak of the pandemic. As a result of the higher net issuance stemming from the fiscal measures and the monetary policy measures taken, the free float has developed differently in percentage and absolute terms since the second quarter of 2020. The Federal Government's strong issuance activity during the pandemic exceeded the Eurosystem's purchases of German government bonds. This caused the percentage share of the free float to decline further to around 30% at the end of the period under review. However, at the same time, the absolute volume in free float rose slightly by just over €38 billion to a little more than €500 billion.

Federal securities in free float*



Sources: ESCB (SHSS database), Finance Agency and Bundesbank calculations. * End-of-quarter values based on nominal values. Securities issued by FMS Wertpapiermanagement and central government's off-budget entities are not included. **1** Total private sector holdings, excluding insurance corporations and pension funds. It is assumed that the outstanding volume of securities not captured by the SHSS can be divided equally between those in free float and those held by strategic investors. This assumption is based on the figures prior to the launch of the PSPP, when approximately half of the outstanding volume was in free float. **2** Free float in relation to the total outstanding volume of securities, including the Finance Agency's own holdings.
Deutsche Bundesbank

Japanese bonds therefore rose comparatively moderately by 17 basis points to 0.24%, which corresponds to the upper end of the target range. The spread between Japanese bonds and ten-year Federal bonds (Bunds) has increased significantly to a level not seen since 2014, while their spread over US Treasuries is at a three-year high.

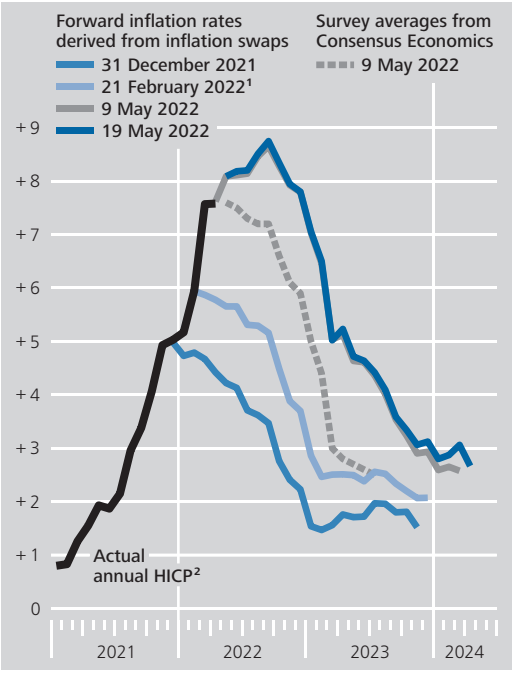
Higher ten-year Federal securities yield due to increased short-term interest rate expectations and higher term premia

Yields on ten-year Bunds also rose significantly during the reporting period (1.0%, +113 basis points). They returned to positive levels in January for the first time since mid-2019. Such a steep rise in interest rates had last been observed in the spring of 2015, when the ten-year yield on Federal securities rose by around one percentage point in the span of a few weeks (the Bund tantrum). A model breakdown of the yield curve of Federal securities shows that two factors contributed to the rise in yields. First, term premia increased. To some extent, this is likely to be a consequence of lower net asset purchases by the Eurosystem. Second, market participants expected higher short-term interest rates, especially in the short to medium term, in view of constantly rising inflation rates.

German yield curve shifted significantly upwards and became steeper

The yield curve derived from the yields of Federal securities shifted significantly upwards and became steeper during the period under review. As this report went to press, short-dated bonds also started yielding more than the deposit facility rate of -0.5%. From the two-year maturity category onwards, the yield curve was positive. At the end of 2021, the only bonds to generate positive yields had been those with residual maturities of more than 20 years. At last count, the yield spread between Federal securities and maturity-matched bonds issued by the Kreditanstalt für Wiederaufbau (KfW) was wider than at the end of last year (+20 basis points to 0.7 percentage point). The premium paid by market participants for the particularly high liquidity of Federal securities has therefore increased since the start of the year. Given the repricing of bonds in an environment

Short-term HICP paths for the euro area



Sources: Fenics Market Data, Consensus Economics, Eurostat and Bundesbank calculations. **1** On Monday, 21 February 2022, Russia recognised the independence of parts of the Donetsk and Luhansk regions within Ukrainian territory. **2** HICP excluding tobacco.

Deutsche Bundesbank

of higher inflation rates, the volatility of Federal securities yields also increased. As a result, the implied volatility of options on futures contracts for Bunds was above its five-year average.

Widening of yield spreads in euro area

The yield spread between ten-year Bunds and ten-year government bonds of other euro area countries (GDP-weighted average) widened compared with the start of the year by 32 basis points to 1.0 percentage point. Even after the scheduled conclusion of net asset purchases under the pandemic emergency purchase programme (PEPP), the yield spread remained only moderately above the five-year average (0.8 percentage point). The five-year window fully covers a period during which the Eurosystem was active in bond markets.[3] In this environment of generally low interest rates, private investors were more willing to purchase bonds with lower ratings in order to obtain a somewhat higher interest rate ("search for yield"). The current widening of the spread reflected the fact that, in the wake of the expected shift in monetary policy stance, the relative prices of bonds with different ratings will also return to normal. Changes in the yield spreads of the other euro area Member States were not uniform, but instead reflected different country-specific risks. For example, the yield spreads of countries with a poorer rating widened somewhat disproportionately overall. In particular, the yield spread of Greek government bonds, which, with a Standard & Poor's rating of BB+, are not classified as investment grade, widened significantly (+108 basis points). However, it remained slightly below its five-year average. Market liquidity indicators did not point to any pronounced tightness in the market for euro area government bonds during the period under review.

Market participants expected higher inflation rates in the medium term

At the end of the reporting period, market-based short-term inflation expectations for the euro area derived from inflation swaps were well above the 2% definition of price stability over a two-year horizon, peaking at over 8% for September 2022. At the end of 2021, inflation swaps had still been indicating that inflation would rapidly fall back to 2% from a high level by the end of this year. With the recent increase, the profile of market-based indicators of inflation expectations for the next two years shifted very significantly upwards. This process started with the publication of surprisingly high inflation figures at the beginning of the year and intensified with the outbreak of the war against Ukraine (see also p. 22). The expected inflation rates for 2023 increased particularly sharply. However, inflation expectations have also risen in the medium term since the beginning of the year. Inflation swaps recently recorded an inflation rate in excess of 2.5% for April 2024, the last month for which detailed information is currently available.[4] On an an-

3 Between January 2019 and October 2019, the Eurosystem did not make any net purchases under the asset purchase programme (APP) but fully reinvested the principal payments from maturing securities.

4 Detailed inflation swaps are available at monthly horizon intervals for the next 24 monthly data releases. In addition, there are inflation swaps with less granular annual maturity intervals up to a ten-year horizon.

nual average, market participants expected a rate of 7.7% for 2022 and 4.6% for 2023. A period in which high inflation expectations become entrenched increases the risk that households and enterprises will align their wage and price-setting decisions with inflation expectations that are above the 2% inflation target.

Survey and market-based inflation expectations differ due to risk premia

Market-based inflation expectations were also considerably above survey expectations and markedly above the March ECB staff projections. Methodological and economic factors can cause market and survey-based inflation expectations to diverge. The positive inflation risk premium reflected in the difference between market and survey-based values suggests, for instance, that market participants are hedging against risks arising from unexpectedly high inflation in the future. In their assessment, they also take into account war-related scenarios which can have serious implications for energy price movements. Market participants who assume the risk of insuring others against high inflation in risky situations charge a premium, which means that, in addition to the probability of high inflation occurring in swap rates, the risk itself is also priced in.

Significantly greater rise in long-term forward inflation rates in the euro area

Market participants also expected markedly higher inflation rates in the long term. At 2.3% at last count, the five-year forward inflation rate five years ahead, which is likewise derived from inflation swaps, was 30 basis points higher than at the beginning of the year and 53 basis points higher than before the Russian invasion of Ukraine. On the other hand, survey-based inflation expectations calculated by Consensus Economics for the euro area six to ten years ahead fell slightly in April to 1.9%, compared with 2.0% in January 2022. As with the above-mentioned short-term inflation expectations derived from inflation swaps, risk premia are likely to have additionally contributed to the sharp rise in long-term market-based indicators.

Corporate bond yield spreads up

Yields on European corporate bonds with residual maturities of between seven and ten years have risen significantly since the beginning of the year. Given that the yields on matched-maturity Federal securities rose less sharply on balance, the spreads of BBB-rated European financial and non-financial corporate bonds over Bunds widened by 131 and 89 basis points, respectively. Yields and risk premia on high-yield bonds rose particularly sharply. At the same time, the credit default premia for debtors with poor creditworthiness increased (iTraxx Crossover (five years), +235 basis points). The majority of this increase already took place prior to the invasion of Ukraine by the Russian Federation. Measured by yield spreads, funding conditions for European enterprises in the capital market were hovering at just over ½ percentage point above their five-year average as this report went to press.

Forward inflation rates* and expectations in the euro area and the United States

% p.a., weekly averages

Sources: Bloomberg, Thomson Reuters, Consensus Economics and Bundesbank calculations. * Derived from the fixed cash flow arising from inflation swaps which is swapped for the actual annual inflation rates (HICP excluding tobacco for the euro area and CPI Urban Consumers for the United States) realised over the next five or ten years.

Deutsche Bundesbank

High net issuance of German debt securities

Gross issuance in the German bond market in the first quarter of 2022 was significantly higher than in the preceding three-month period. Overall, German issuers placed €433½ billion

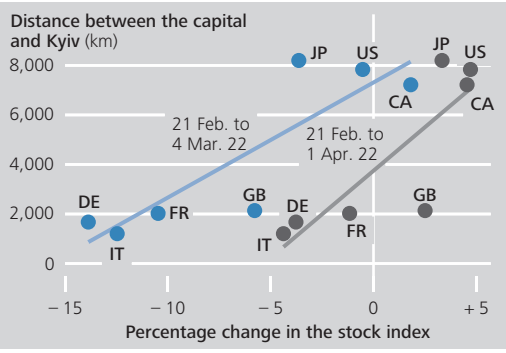
Investment activity in the German securities markets

€ billion

Item	2021 Q1	2021 Q4	2022 Q1
Debt securities			
Residents	92.8	41.9	103.3
Credit institutions	10.9	– 27.9	12.0
of which:			
Foreign debt securities	– 4.2	– 15.0	12.3
Deutsche Bundesbank	54.6	58.3	40.5
Other sectors	27.3	11.5	50.8
of which:			
Domestic debt securities	– 13.0	8.4	15.0
Non-residents	28.1	– 42.9	32.7
Shares			
Residents	25.6	37.7	19.4
Credit institutions	3.6	2.3	– 1.3
of which:			
Domestic shares	2.6	– 0.1	– 0.7
Non-banks	22.0	35.4	20.6
of which:			
Domestic shares	1.7	26.2	11.3
Non-residents	8.9	– 7.5	– 9.2
Mutual fund shares			
Investment in specialised funds	23.9	56.7	31.8
Investment in retail funds	9.4	11.6	3.9
of which:			
Equity funds	4.3	2.7	0.0

Deutsche Bundesbank

Regional effects on stock prices resulting from the war in Ukraine*



Sources: Refinitiv, Luftlinie.org, OpenStreetMap.org, Opendatacommons.org, © OpenStreetMap contributors. * Percentage changes in MSCI indices in local currency (performance indices).

Deutsche Bundesbank

worth of debt securities in the market, up from €354 billion in the previous three months. Net of redemptions and changes in issuers' own holdings, residents ramped up their capital market borrowing by €87½ billion. The outstanding volume of foreign debt securities in the German market rose by €48½ billion in the first quarter. On balance, the total outstanding volume of bonds in Germany thus grew by €136 billion in the quarter under review.

Rise in credit institutions' capital market debt

Domestic credit institutions increased their capital market debt by €43½ billion on balance between January and March, compared with net redemptions of €4 billion in the previous quarter. The primary instruments issued were debt securities of specialised credit institutions (€33 billion), followed to a lesser extent by mortgage Pfandbriefe (€5 billion) and other bank debt securities that can be structured flexibly (€4 billion).

Net public sector issuance

In the first quarter of 2022, the public sector issued bonds to the tune of €26 billion net, following €21½ billion in the previous three-month period. The Federal Government (including the resolution agency classified as part of central government) issued mainly 30-year Federal bonds (Bunds) and five-year Federal notes (Bobls) (€16 billion and €14 billion respectively). This contrasted with net redemptions of Treasury discount paper (Bubills) amounting to €13½ billion. State and local governments issued bonds worth €3 billion net.

Net issuance of corporate bonds

In the quarter under review, domestic enterprises were highly active in the corporate bond market, issuing a net €17½ billion worth of bonds. Their net redemptions equalled €8 billion a quarter earlier. The bulk of these issues was attributable to non-financial corporations (€11 billion).

Purchases of debt securities

All groups of investors acquired debt securities in the first quarter of 2022, with domestic non-banks expanding their bond portfolios by a net €51 billion, in particular. Foreign debt securities were the instrument of choice (€36 billion). The Bundesbank acquired bonds in the amount of €40½ billion net, predominantly under the Eurosystem's asset purchase programmes. The majority of these purchases involved domestic paper issued by public sector entities. Foreign investors, meanwhile, acquired a net €32½ bil-

lion worth of German debt securities. Domestic credit institutions likewise expanded their bond portfolio, by €12 billion in net terms. On balance, their interest focused exclusively on foreign debt securities.

Equity market

International equity markets with losses

International equity market prices have declined markedly since the beginning of the year. The rise in long-term interest rates in many countries was the decisive factor. They weighed on prices throughout the reporting period via the discount factor effect. Recently, concerns about economic developments have also arisen, not least as a result of lockdowns in China due to the zero-COVID policy being pursued there. Russia's invasion of Ukraine also led to abrupt, albeit mostly short-lived, price losses in global equity markets. Relatively speaking, the stock exchanges in Europe were affected the most in the period immediately after the start of the war. This reflected the fact that the economies of those countries in closer proximity to Russia and Ukraine are usually also more closely intertwined with these countries. This also applies to Germany, whose economy had been heavily dependent on Russian commodities up until the start of the war. As a reflection of the slump in prices, uncertainty in the equity markets temporarily spiked after the start of the war. However, as uncertainty declined, prices picked up again somewhat. Toward the end of the reporting period, the regionally differentiated price pattern largely disappeared. On balance, the US S&P 500 (-18.2%), the Euro Stoxx (-14.7%) and the CDAX (-17.3%) have each recorded significant losses since the beginning of the year. The Japanese Nikkei's losses were more moderate (-8.3%). In the United Kingdom, markets closed at the end of the period under review down only slightly from the beginning of the year (FTSE 100: -1.1%). One reason for this better performance is that the FTSE index contains a large contingent of enterprises that benefited from the high price gains in the commodity sector.

Major items of the balance of payments

€ billion

Item	2021 Q1	2021 Q4	2022 Q1p
I. Current account	+ 75.0	+ 64.9	+ 52.3
1. Goods	+ 57.2	+ 38.8	+ 34.3
2. Services	+ 3.3	− 1.2	− 2.5
3. Primary income	+ 31.8	+ 41.9	+ 36.9
4. Secondary income	− 17.3	− 14.6	− 16.4
II. Capital account	− 0.3	− 1.0	− 1.9
III. Financial account (increase: +)	+ 106.9	+ 86.3	+ 94.0
1. Direct investment	+ 32.0	+ 32.9	+ 4.7
Domestic investment abroad	+ 51.0	+ 38.8	+ 44.8
Foreign investment in the reporting country	+ 19.0	+ 5.9	+ 40.1
2. Portfolio investment	+ 28.4	+ 95.4	+ 38.4
Domestic investment in foreign securities	+ 65.1	+ 42.0	+ 59.7
Shares[1]	+ 13.0	+ 12.9	+ 7.2
Investment fund shares[2]	+ 16.7	+ 39.9	+ 4.0
of which: Money market fund shares	− 8.4	+ 14.0	− 8.7
Short-term debt securities[3]	+ 2.6	− 10.4	+ 1.3
Long-term debt securities[4]	+ 32.8	− 0.4	+ 47.2
of which: Denominated in euro[5]	+ 21.3	+ 4.2	+ 42.3
Foreign investment in domestic securities	+ 36.7	− 53.3	+ 21.3
Shares[1]	+ 8.5	− 7.6	− 9.2
Investment fund shares	+ 0.2	− 2.8	− 2.2
Short-term debt securities[3]	+ 19.7	− 6.1	− 5.2
Long-term debt securities[4]	+ 8.4	− 36.8	+ 37.9
of which: Issued by the public sector[6]	− 1.5	− 32.9	+ 16.8
3. Financial derivatives[7]	+ 20.3	+ 18.9	+ 10.6
4. Other investment[8]	+ 25.8	− 61.1	+ 38.1
Monetary financial institutions[9]	− 105.8	+ 99.4	− 126.3
Enterprises and households[10]	+ 53.9	− 44.5	+ 60.0
General government	− 2.1	+ 1.0	− 5.2
Bundesbank	+ 79.8	− 117.1	+ 109.5
5. Reserve assets	+ 0.4	+ 0.3	+ 2.2
IV. Errors and omissions[11]	+ 32.2	+ 22.4	+ 43.5

1 Including participation certificates. **2** Including reinvested earnings. **3** Short-term: original maturity of up to one year. **4** Long-term: original maturity of more than one year or unlimited. **5** Including outstanding foreign Deutsche Mark bonds. **6** Including bonds issued by the former Federal Railways, the former Federal Post Office and the former Treuhand agency. **7** Balance of transactions arising from options and financial futures contracts as well as employee stock options. **8** Includes, in particular, loans and trade credits as well as currency and deposits. **9** Excluding the Bundesbank. **10** Includes the following sectors: loans corporations (excluding monetary financial institutions) as well as non-financial corporations, households and non-profit institutions serving households. **11** Statistical errors and omissions resulting from the difference between the balance on the financial account and the balances on the current account and the capital account.

Deutsche Bundesbank

Do financial sanctions against Russian banks affect payments? Evidence from the German TARGET2 component

Russia's annexation of the Crimean peninsula in March 2014 prompted the European Union (EU) to impose financial sanctions on Russia for the first time. In mid-2014, it adopted targeted measures not only against individuals but also against specific Russian credit institutions. Following the Russian invasion of Ukraine on 24 February 2022, the European Union tightened and expanded the sanctions. Many other countries also adopted sanctions against Russia or extended existing restrictions.

This study uses transaction data from the German TARGET2 component (TARGET2-Bundesbank) between 1 February 2022 and 30 April 2022 to assess whether financial sanctions against Russian credit institutions which have been newly implemented or tightened since the end of February 2022 actually reduced financial flows in the German TARGET2 component and whether the various types of sanctions had different effects.[1] The analysis is based exclusively on data from the Bundesbank's TARGET2 component system and focuses only on the "customer payments" and "interbank payments" transaction categories,[2,3] not taking into account third-party data. The advantage of the TARGET2 data used is that they are available on a daily basis. Furthermore, the effect of the sanctions can be cleanly identified econometrically, as the dataset contains accounts of both sanctioned and non-sanctioned Russian banks. However, a caveat is in order: the study only covers a subset of all payments to and from Russia, as other payment channels and TARGET2 component systems are not taken into account.[4] Moreover, it includes only those transactions from TARGET2-Bundesbank initiated by Russian banks via correspondent banks in the EU in TARGET2 or TARGET2 payments intended for Russian banks. This is why further studies are needed, especially given the possibility of circumvention and also incorporating additional data sources, in order to draw general conclusions on the impact of financial sanctions on financial flows.

The study distinguishes between three different types of financial sanctions against Russian banks. These are capital market sanctions, SWIFT exclusion[5] and prohibitions on disposal (see the table on p. 49).

Nine Russian banks are subject to capital market sanctions (column 1).[6] This means that EU market participants are prohibited from directly or indirectly purchasing, selling, providing investment services for or as-

1 TARGET2 (Trans-European Automated Real-time Gross settlement Express Transfer system) is a Eurosystem payment system for the fast and secure settlement of individual electronic payments within the European Union. TARGET2 is based on a single shared platform (SSP) and guarantees the rapid exchange of central bank liquidity in real time.
2 Only payments processed via the German TARGET2 component are taken into account. Payments from Russia initiated, for example, via an Austrian bank in TARGET2 and intended, say, for a recipient in France are not included. This therefore represents only a subset of all TARGET2 business activities.
3 These two transaction categories make up around 95% of the total number of observations. In terms of value, they comprise around 60% of the recorded capital flows. Credit institutions' intra-group payments account for the majority of the other transactions in TARGET2-Bundesbank.
4 Important Russian participants are also included, for example, in the Austrian and French TARGET2 components. In addition to their TARGET2 business activities, Russian credit institutions also use other payment systems to settle their payments.
5 The Society for Worldwide Interbank Financial Telecommunication (SWIFT) operates a particularly secure telecommunications network which is used by banks worldwide to settle financial transactions.
6 The capital market measures also apply to the subsidiaries of the aforementioned credit institutions domiciled outside the EU.

Financial sanctions against Russian banks

Capital market sanctions	SWIFT exclusion	Prohibitions on disposal
Council Regulation (EU) No 833/2014 of 31 July 2014 and Council Regulation (EU) 2022/328 of 25 February 2022	Council Regulation (EU) 2022/345 of 1 March 2022	Council Implementing Regulation (EU) No 826/2014 of 30 July 2014, Council Implementing Regulation (EU) 2022/260 of 23 February 2022 and Council Implementing Regulation (EU) 2022/581 of 8 April 2022
Alfa Bank (from 25 February 2022)		
Bank Otkritie (from 25 February 2022)	Bank Otkritie (from 14 March 2022)	Bank Otkritie (from 8 April 2022)
Bank Rossiya (from 25 February 2022)	Bank Rossiya (from 14 March 2022)	Bank Rossiya (from 23 February 2022)
Gazprombank (from 31 July 2014)		
	Novikombank (from 14 March 2022)	Novikombank (from 8 April 2022)
Promsvyazbank (from 25 February 2022)	Promsvyazbank (from 14 March 2022)	Promsvyazbank (from 23 February 2022)
Rosselkhozbank (from 31 July 2014)		
		Russian National Commercial Bank (from 30 July 2014)
Sberbank (from 31 July 2014)		
	Sovcombank (from 14 March 2022)	Sovcombank (from 8 April 2022)
Vnesheconombank (VEB) (from 31 July 2014)	Vnesheconombank (VEB) (from 14 March 2022)	Vnesheconombank (VEB) (from 23 February 2022)
VTB Bank (from 31 July 2014)	VTB Bank (from 14 March 2022)	VTB Bank (from 8 April 2022)

Deutsche Bundesbank

sistance in the issuance of, or otherwise dealing with transferable securities and money market instruments issued by the sanctioned institutions. As a result, these Russian banks are no longer able to refinance themselves in the EU via capital market instruments (depending on the limitation of maturity via bonds or money market instruments). Seen in isolation, these types of financial sanctions are likely to be, relatively speaking, the softest type of instrument, as other forms of borrowing are still possible.[7] Furthermore, this measure does not address payment transactions, which means that payments may continue to be made. In addition, the nine Russian banks affected – at least under these EU regulations – are not prevented from buying or selling, on behalf of their customers, securities issued by other entities.[8]

The SWIFT exclusion (column 2) is governed by Council Regulation (EU) 2022/345: "It shall be prohibited as of 12 March 2022 to provide specialised financial messaging services, which are used to exchange financial data, to the legal persons, entities or bodies listed in Annex XIV or to any legal person, entity or body established in Russia whose proprietary rights are directly or indirectly owned for more than 50% by an entity listed in Annex XIV." The organisations listed in said Annex include seven Russian banks. This type of financial sanction has considerably more bite than capital market sanctions. Nevertheless, the affected Russian institutions can continue to make international credit transfers via alternative payment systems, such as the Chinese Cross-Border Interbank Payment System (CIPS), or other secure communication channels, such as secure fax lines. As standardised messa-

7 Article 5 of Council Regulation (EU) No 833/2014 also prohibits lending to certain Russian credit institutions.

8 However, since 26 February 2022, general restrictions on some Russian enterprises have also been in force in the securities sector (Articles 5e and 5f of Regulation (EU) No 833/2014).

ging via SWIFT is no longer possible, the number and volume of transactions are likely to decline considerably in practice.

Eight Russian banks are subject to prohibitions on disposal (column 3). All funds and economic resources belonging to, owned, held or controlled by any natural or legal persons, entities or bodies, or natural or legal persons, entities or bodies associated with them shall be frozen. No funds or economic resources shall be made available, directly or indirectly, to or for the benefit of the parties concerned. This type of financial sanction is likely to be toughest of the three types discussed here, as these measures directly affect payments.[9,10]

As mentioned above, this study is confined to TARGET2-Bundesbank transaction data. This includes payments initiated by Russian banks via correspondent banks in the EU in TARGET2-Bundesbank or intended for Russian banks – where apparent based on available information.[11]

All in all, the dataset comprises business-day transactions for 518 Russian institutions with a unique business identifier code (BIC) and 62 TARGET2 business days. 163 BICs are subject to capital market sanctions, 50 BICs to SWIFT exclusion and 50 BICs to a prohibition on disposal.[12] As different types of sanctions have been imposed on several Russian banks, there is overlap between the affected BICs.

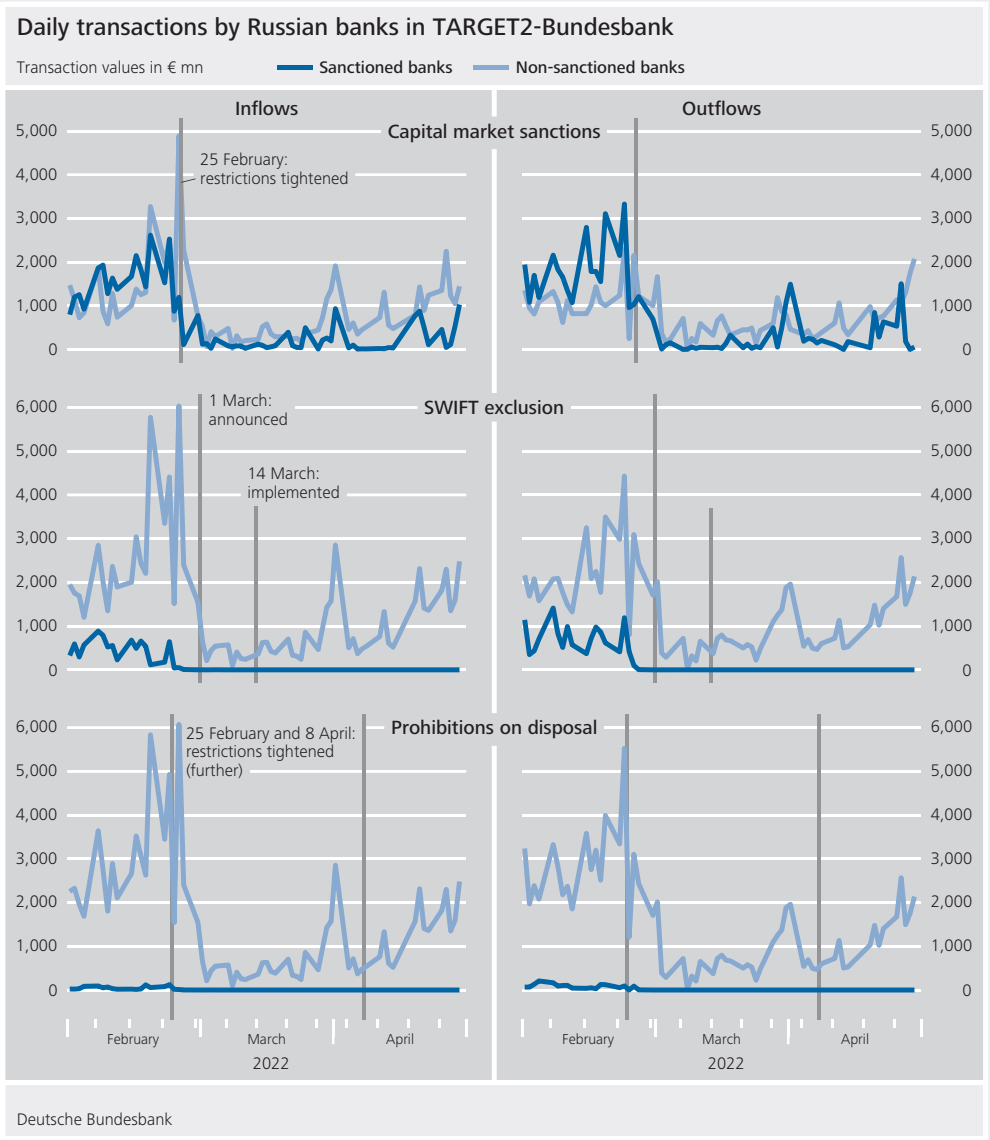
The upper section of the chart on p. 51 describes the business-day aggregated inflows and outflows in TARGET2-Bundesbank via the accounts of non-sanctioned and sanctioned Russian banks from column (1) between 1 February 2022 and 30 April 2022 (capital market sanctions). Up to and including 24 February 2022, the business-day average of inflows to (outflows from) non-sanctioned bank accounts stood at €1.5 billion (€1.1 billion). The business-day average of inflows (outflows) subsequently fell to €0.7 billion (€0.7 billion). Capital flows into and out of the accounts of sanctioned banks also decreased. Up to and including 24 February 2022, the business-day average value of inflows (outflows) amounted to €1.6 billion (€1.8 billion). Inflows (outflows) subsequently dropped to €221 million (€291 million). In the course of April, the financial flows of both groups went back up in some cases.

The middle section of the chart on p. 51 illustrates the capital flows in TARGET2-Bundesbank via the bank accounts of the seven Russian banks excluded from SWIFT. The pattern of gross flows to or from the accounts of non-sanctioned Russian banks is very similar to that under capital market sanctions. It is striking that transactions plummeted following the Russian invasion of Ukraine on 24 February 2022. Since the decision to exclude several Russian banks from SWIFT on 1 March 2022, the aggregate daily transactions of the sanctioned bank accounts have been close to zero.

The lower section of the chart on p. 51 illustrates the capital flows of non-sanctioned and sanctioned Russian banks in the event of a prohibition on disposal. These types of sanctions also include restrictions on pay-

---

9 In the past, prohibitions on disposal have often been imposed on certain individuals in sanctioned countries.
10 Depending on the business activity of the Russian bank, in specific cases a SWIFT exclusion may also have a stronger impact than a prohibition on disposal.
11 It is not always mandatory to populate the message fields in SWIFT. There are strong signs of an increase in "free format" messages, where the field is populated but not with an automatically identifiable BIC. In the TARGET2 transaction data, the corresponding field is then empty. The assumption is that Russian institutions are trying to conceal their transactions.
12 As a rule, a single credit institution has several BICs. Therefore, the number of BICs is greater than the number of sanctioned Russian banks.



ments. The pattern of gross flows to or from the accounts of the non-sanctioned Russian banks is once again very similar. Since the prohibition on disposal went into effect on 23 February 2022, capital flows to or from the accounts of sanctioned banks have likewise been close to zero. However, even immediately before the prohibition on disposal, the average daily gross flows to and from sanctioned banks were at a low level: €53 million in inflows to Russian bank accounts and €93 million in outflows from Russian bank accounts (from 1 February to 22 February 2022).

The descriptive statistics indicate that capital flows to and from both the accounts of non-sanctioned banks and the accounts of sanctioned banks fell sharply following the introduction or tightening of strict measures against Russian banks. The effect on the accounts of sanctioned banks was more severe in the case of SWIFT exclusion and prohibition on disposals than in the case of capital market sanctions.

However, the descriptive analysis does not take into account general macroeconomic developments or across-the-board reluctance to engage in transactions as a result

of the war, both of which affect all Russian banks equally. The econometric analysis below therefore incorporates additional effects, such as the withdrawal of multinational enterprises from Russia, which is also likely to have had a negative impact on payments. In addition, the study takes into account potential interdependencies when Russian banks are affected by multiple sanctions.

In order to assess the effect of financial sanctions on Russian banks, the study uses a difference-in-differences estimator. This method attempts to identify a causal effect. For this purpose, a group experiencing a certain intervention ("treatment", here: accounts of sanctioned Russian banks) is compared with a control group (accounts of non-sanctioned Russian banks). Since the beginning of the war can be interpreted as an exogenous event that leads to the introduction or tightening of sanctions, a "treatment" exists in the subsequent period. Russian bank accounts that make payments via TARGET2-Bundesbank but are not subject to sanctions serve as a control group. Only the effects on sanctioned banks that go beyond general developments are of interest. Data gaps are filled with nil values in order to create a balanced panel. In the following, equation (1) is estimated using the Pseudo-Poisson Maximum Likelihood (PPML) estimator in order to account for non-linear effects:

$$(1)\quad Capital\ flows_{bt} = \alpha + \exp[\beta Sanctions_{bt} + (+\gamma Anticipation_{bt}) + \pi_b + \sigma_t] + \varepsilon_{bt}$$

where $Capital\ flows_{bt}$ represents the respective gross flow (inflows/outflows) of the Russian account b (identified using the BIC) on day t as part of the German TARGET2 component. $Sanctions_{bt}$ is a binary variable that assumes the value of 1 if the Russian account b is affected by EU financial sanctions on day t. A negative estimation coefficient of β is to be expected. The three different types of financial sanctions from the table on p. 53 (capital market sanctions, SWIFT exclusion and prohibitions on disposal) serve as the basis for the sanctioned BICs. The value of $Sanctions_{bt}$ corresponds to the value of 1 for the affected BIC b as from the first day on which the first sanction was imposed on the respective bank.[13] In the case of the SWIFT exclusion, the binary variable $Sanctions_{bt}$ assumes the value of 1 as of 14 March 2022. However, as the SWIFT exclusion was already announced on 1 March 2022, the estimation also incorporates an anticipation effect into the corresponding regression. The variable $Anticipation_{bt}$ assumes the value of 1 between 1 March 2022 and 11 March 2022. π_b and σ_t denote bank-specific and time-specific fixed effects. As only Russian accounts are examined, the time-specific fixed effects reflect Russia's general macroeconomic developments. This environment is likely to affect all Russian accounts simultaneously and in a similar way. The bank-specific fixed effects are designed to control for general business relationships that do not change over time. ε_{bt} is the statistical error term.

A baseline specification does not distinguish between the different types of sanctions: the sanction variable assumes the value of 1 once a sanction on the respective Russian bank has been imposed, irrespective of whether it is a capital market sanction, SWIFT exclusion or a prohibition on disposal. A second estimation then incorporates multiple binary sanction variables simultaneously to assess which types of finan-

13 Since various Russian banks were already subject to sanctions before the start of the estimation period, their transactions are ultimately a non-factor in the estimation results.

Effect of sanctions against Russian banks

	Baseline specification		Distinction by type of financial sanction	
	(1)	(2)	(3)	(4)
Item	Inflows	Outflows	Inflows	Outflows
Sanctions	– 1.271***	– 1.996***	.	.
	(0.344)	(0.564)		
Anticipation	.	.	– 4.949***	– 7.793***
			(1.080)	(1.091)
Capital market sanctions	.	.	– 1.177***	– 1.670***
			(0.196)	(0.368)
SWIFT exclusion	.	.	– 10.263***	– 12.134***
			(1.178)	(1.062)
Prohibitions on disposal	.	.	– 2.439***	– 3.750***
			(0.423)	(0.264)
Observations	24,924	28,644	24,924	28,644
Adjusted R^2	0.856	0.847	0.866	0.864

*** Significant at the 1% level, ** significant at the 5% level, * significant at the 10% level. Bank account-specific and time-specific fixed effects are taken into account but not reported. Robust standard errors (clustered across bank accounts) in parentheses.

Deutsche Bundesbank

cial sanctions have a particularly strong impact on financial flows.

The above table presents the estimation results of equation (1). Non-sanctioned Russian banks serve as a control group in all estimates. The results should therefore be interpreted in comparison with this group. The first two columns show the coefficients for financial sanctions imposed on Russian banks irrespective of their type. The results are statistically significant for both inflows and outflows. The estimated coefficient of -1.271 (-1.996) means that the inflows (outflows) to or from the accounts of sanctioned Russian banks have fallen by 71.9% (86.4%) solely on account of the sanctions and irrespective of other influences. Columns (3) and (4) distinguish between the types of financial sanctions: all three binary variables are included in the estimation. The estimation also controls for anticipation effects regarding the SWIFT exclusion. The regression results are likewise negative and statistically highly significant. The coefficient of -1.177 (-1.670) for inflows (outflows) for capital market sanctions means that gross flows to and from the accounts of sanctioned Russian banks have fallen by 69.2% (81.2%). By comparison, the SWIFT exclusion had a stronger effect: transactions ground to a virtual halt (each -99.9%). Since the implementation of the SWIFT exclusion did not take place until a few days after the announcement, the anticipation effects between 1 March 2022 and 11 March 2022 are also visible. According to the estimation results, gross flows collapsed nearly completely even before the decision was actually implemented (-99.3%). The results of the prohibitions on disposal are likewise statistically highly significant and negative. Inflows (outflows) fell by 91.3% (97.6%). This means that all three types of financial sanctions lead to a decline in financial flows in the German TARGET2 component, with capital market sanctions, as the least severe sanctions, showing the weakest response in terms of value. According to the estimation results, SWIFT exclusion as well as prohibitions on disposal

cause transactions in TARGET2-Bundesbank to be discontinued almost entirely.[14]

The results illustrate that there was a general decline in the transactions of Russian banks recorded in the German TARGET2 component after 24 February 2022. Gross flows from both non-sanctioned and sanctioned Russian banks' accounts decreased following the expansion and tightening of sanctions as a result of Russia's invasion of Ukraine. Capital market sanctions, SWIFT exclusion and the prohibitions on disposal are likely to have a strong impact according to estimation results. The anticipation effects prior to the implementation of the SWIFT exclusion have also led to a statistically significant fall in inflows and outflows. However, potential circumvention effects cannot be ruled out per se: such transactions could be taking place via TARGET2 accounts in component systems of other euro area countries or via alternative payment channels and systems.

14 Additional robustness analyses with interaction terms which incorporate additional interdependencies of the sanctioned Russian banks do not change these results. Thus, potential sanctions overlaps do not appear to play a significant additional role.

Indicators of valuation level present mixed picture

Despite the war, analysts have continued to rate the fundamentals of enterprises in Europe (Euro Stoxx) and the United States (S&P 500) as good. Since the beginning of the year, they have revised their sales outlook for the coming financial years upwards. However, analysts also assumed that profits would be squeezed by costs. Measured by the earnings yield based on the business outlook for the next 12 months, equity valuations on both sides of the Atlantic are more favourable than at the beginning of the year. By contrast, the lower implied cost of equity[5] has shown that the valuation level is somewhat higher. The main reason for this is that the implied cost of equity also took into account medium-term earnings prospects, which declined from a high level. By historical standards, equity valuations remain rather high overall in the United States and rather low in the euro area.

Equity market funding low

In the first three months of 2022, German stock corporations raised €1½ billion net in new funds (previous quarter: €18½ billion). The volume of foreign shares in the German market rose by €9 billion over the same period. On balance, domestic non-banks were the sole buyers of equities (€20½ billion). By contrast, foreign investors – as is often the case in the run-up to dividend payment dates in the second quarter – and domestic credit institutions reduced their equity portfolios by €9 billion and €1½ billion net, respectively.

Mutual funds

Sales and purchase of mutual fund shares

In the first quarter of 2022, domestic investment companies posted inflows of €35½ billion, following a quarter in which a very high volume of mutual fund shares had been issued (€68½ billion). On balance, specialised funds reserved for institutional investors were by far

5 The implied cost of equity can be calculated using a dividend discount model; see Deutsche Bundesbank (2016).

the primary beneficiaries (€32 billion). Among the asset classes, mixed securities funds, in particular, saw significant inflows of capital (€14½ billion), but bond funds, open-end real estate funds (€6 billion each), and equity-based funds (€4½ billion) likewise recorded inflows. The outstanding volume of foreign mutual fund shares in Germany rose by €4 billion in the period under review. Mutual fund shares were bought on balance almost exclusively by domestic non-banks, which added fund shares worth €40½ billion net to their portfolios. Most of these shares were issued by domestic mutual funds. German credit institutions bolstered their fund portfolios by €1½ billion net, while non-resident investors reduced their fund portfolio in Germany by €2 billion net.

Direct investment

Direct investment posts net capital exports

Transactions in cross-border portfolio investment resulted in net capital exports of €38½ billion in the first quarter of 2022. Direct investment likewise recorded net outflows, albeit to a considerably lesser extent (€4½ billion).

German direct investment abroad results in capital exports

Enterprises domiciled in Germany expanded their foreign direct investment by €45 billion in the first three months of this year on balance, as against €39 billion in the previous quarter. In the process, they boosted the equity capital they provided to foreign affiliates by €29 billion. Reinvested profits accounted for just over two-thirds of this. In addition, firms resident in Germany provided affiliated group entities abroad with additional loans worth €15½ billion, relying, on balance, exclusively on trade credits to do so. The first quarter saw considerable volumes of direct investment funds flowing from Germany to the United Kingdom (€14½ billion) and China (€7 billion). By contrast, return flows of funds from Sweden (€5½ billion) and Russia (€3½ billion) consisted predominantly of repayments of previously granted loans.

Capital inflows through foreign direct investment in Germany

Conversely, foreign enterprises increased their direct investment in Germany sharply between January and March 2022 (€40 billion, compared with €6 billion in the fourth quarter of 2021). They enlarged their equity capital in German subsidiaries by 4½ billion. German enterprises saw considerably larger inflows of funds via intra-group credit transactions (€35½ billion). Additional loans made up the bulk of these transactions, on balance. In the first quarter, particularly high direct investment inflows were reported for the United Kingdom (€21½ billion), France (€4½ billion), Switzerland and the United States (€4 billion each). By contrast, sizeable net outflows to Estonia (€3 billion) and the Netherlands (€2 billion) were generated through repayments of intra-group loans.

List of references

Deutsche Bundesbank (2018), The market for Federal securities: holder structure and the main drivers of yield movements, Monthly Report, July 2018, pp. 15-38.

Deutsche Bundesbank (2017), The Eurosystem's bond purchases and the exchange rate of the euro, Monthly Report, January 2017, pp. 13-39.

Deutsche Bundesbank (2016), Stock market valuations – theoretical basics and enhancing the metrics, Monthly Report, April 2016, pp. 15-29.

Deutsche Bundesbank (2015), Securities holdings statistics for analysing holdings of securities in Germany and Europe: methodology and results, Monthly Report, March 2015, pp. 95-107.

Deutsche Bundesbank (2014), Exchange rates and financial stress, Monthly Report, July 2014, pp. 15-28.

Koijen, R.S.J., F. Koulischer, B. Nguyen, and M. Yogo (2021), Inspecting the mechanism of quantitative easing in the euro area, Journal of Financial Economics 140(1), pp. 1-20.