

Financial Stability Report

Spring 2023

DeNederlandscheBank

EUROSYSTEM

Contents

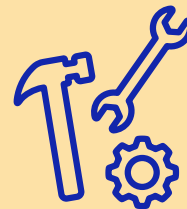
Introduction



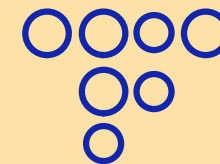
Financial markets



Financial institutions



Macroprudential
policy for banks



Risk map

Summary

Summary

General outline of risks

Due to persistently high inflation and the tightening of financial conditions, the financial stability risks remain high.

The very rapid transition from a low-for-long environment to higher inflation and interest rates is exposing vulnerabilities. The long period of low interest rates encouraged investors and financial institutions to take risks. Governments, businesses and households also built up high debts. The recent interest rate hikes are pushing up financing costs and losses on financial assets and complicate refinancing. Although higher interest rates are generally a good thing for banks, insurers and pension funds, rapid rate hikes can cause shocks.

Financial markets are vulnerable to renewed volatility and corrections. In the spring a number of regional banks in the United States failed and UBS acquired distressed Credit Suisse. This fuelled investor concerns about the stability of banks worldwide. The growth and inflation outlook also remains highly uncertain. Investors expect inflation to be back close to the ECB's target by the end of 2024. If the actual out-turn nevertheless differs from this expectation, and monetary policy has to be tightened further than is currently expected, shock adjustments will be more likely.

The cooling property market poses no immediate risk to financial stability, but some households are vulnerable.

House prices in the Netherlands have been falling since August 2022 (m-o-m), ending a period of sustained house price growth. This cooling has been driven by the rise in mortgage interest rates. Dutch households are better able to withstand falling house prices than during the financial crisis, but some households are vulnerable as interest rates are rising and the cost of living has soared. Growing cyclical and structural risks are also putting pressure on the commercial real estate market.

Dutch financial institutions are resilient. The capital and liquidity positions of the Dutch banking sector are currently well above the minimum requirements. Banks' resilience has also been bolstered by supervision and institution-specific requirements governing interest rate and liquidity risk. The major Dutch banks appear resilient even in a stress scenario with a negative confidence shock and an adverse macroeconomic scenario. Insurers and pension funds are also in a favourable position, particularly thanks to the rise in interest rates.

Policy

Lessons can be drawn from the recent bank problems with regard to regulation and supervision, particularly in the field of liquidity risk, interest rate risk and resolution. The coronavirus crisis had already underlined the importance of having buffers. Lessons for other areas of banking regulation can also be drawn from the recent bank problems. First, it is clear that global standards must be widely applied, because even problems in small and medium-sized banks can trigger a global chain reaction. Regulation also makes banks more resilient to the impact of future interest rate changes. There should be further global harmonisation of standards dealing with interest rate risk, with an exploration of whether this should be included in banks' minimum capital requirements. With regard to liquidity risk, the combination of requirements and supervision ensures that banks are prepared for possible stress situations. While the requirements are effective, in a changing, digital world it is important that standards continue to be based on realistic assumptions. These standards may need to be revised in some areas. It is also important that resolution authorities prepare a range of options for resolving failing banks. If the initial preferred strategy no longer proves feasible due to changing circumstances, such as market conditions or the causes of problems at a bank, it is important to be flexible and prepared to take an alternative route.

The framework for the regulation of the non-banking sector also needs to be enhanced. Although the non-banking financial institutions have been spared the recent turmoil in the banking sector, there is a need to address vulnerabilities in these institutions and to increase their resilience. The role of non-bank financial intermediation is growing and these institutions are also sensitive to changes in interest rates and the economic outlook. The vulnerabilities in the non-bank sector are mainly associated with liquidity mismatches, interconnectedness and the use of leverage.

We have recalibrated the buffers for banks. When sufficient buffers are in place, banks can absorb shocks without having to curtail their lending. On the basis of the current picture of cyclical risks, the countercyclical capital buffer (CCyB) needs to be raised from 1% to 2%. As described in the [CCyB framework](#), this will take it to the target level in a standard risk environment. We are also adjusting the buffers for other systemically important banks (the O-SII buffers). The new buffer requirement reflects the macro-financial developments in recent years and the progress made in European regulation and integration, such as the development of the banking union. Although the impact on each bank differs, the combination of these measures slightly increases the capital requirements for the banking sector as a whole. The adjusted buffer requirements are due to come into force on 31 May 2024. ■

What can we learn from recent bank failures in the US and Switzerland?

1 Prepared for rough weather?

- Institutions must remain shock-resistant.
- Dutch financial institutions are resilient, but the current situation calls for vigilance.



2 Which banks are subject to regulation?

- Problems at small and medium-sized banks can also cause a chain reaction.
- Global agreements must be applied more widely.



3 Where are interest rates going?

- Banks must be prepared for interest rate movements.
- Additional international agreements are advisable for dealing with interest rate risk.



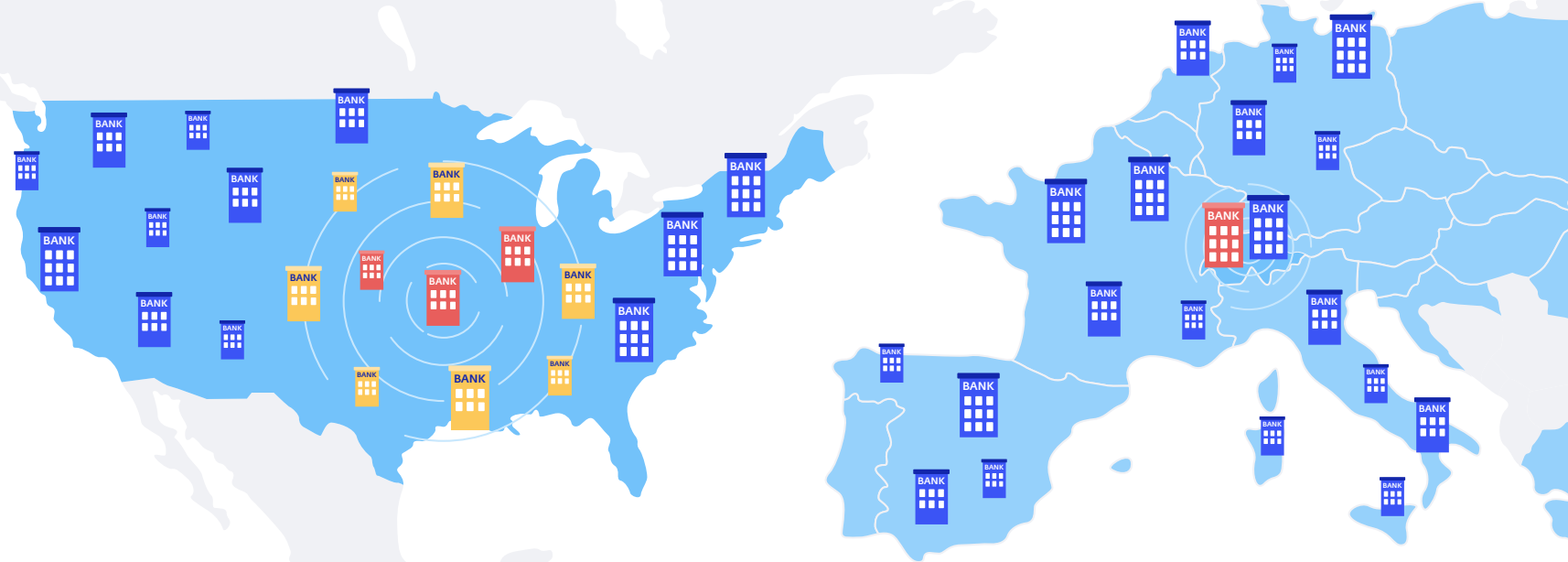
4 Adapt to a changing world?

- Banks must be prepared for rapid outflows of deposits.
- Partial review of liquidity standards potentially needed.
- Assumptions must remain realistic in a digital and changing environment.



5 What if a bank fails?

- Resolution is a key safety net for a failing bank.
- Multiple options need to be prepared for resolution.



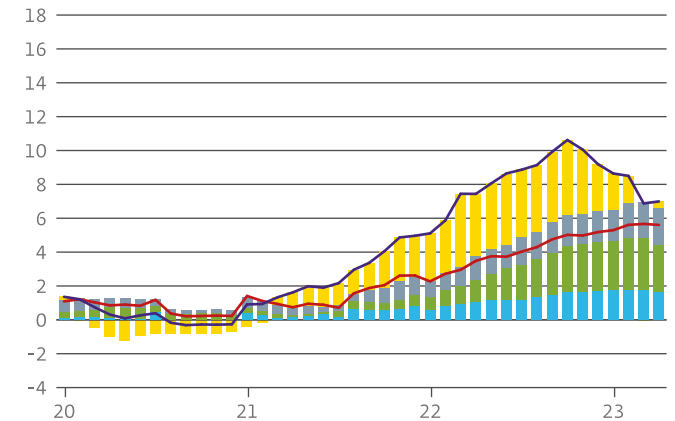
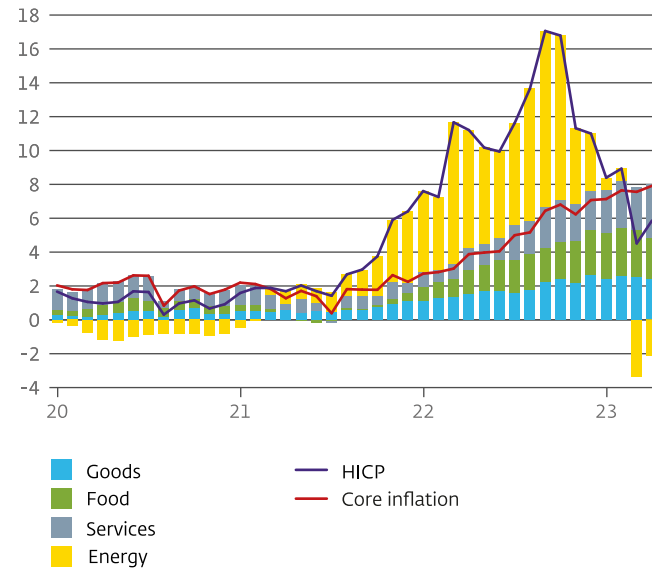
Introduction

Inflation remains persistently high and prices are rising on a broad front, despite the fall in energy prices.

The recent inflation developments consequently present a mixed picture. Mainly due to the sharp fall in energy costs, inflation has started to trend lower in the euro area and in the Netherlands, but this does not apply to core inflation, which excludes energy and food prices. For example, euro area inflation has fallen from a peak of 10.6% in October 2022 to 7.0% in April this year, whereas core inflation rose from 5.0% to 5.6% over the same period. In the Netherlands, the inflation peak was higher and inflation fell faster, but here too core inflation has proved stubborn (Figure 1). Hence there is a risk that inflation will remain too high for longer, particularly if second-order effects associated with rising wages cause upward price pressure.

The change in the monetary policy stance has led to a significant tightening of financing conditions. Spurred by high inflation, the European Central Bank (ECB) rapidly abandoned the very accommodative monetary policy it had been pursuing since the global financial crisis. Purchasing programmes are being unwound at an accelerated pace and interest rates have been raised by 3.75 percentage points. Further interest rate hikes will follow, particularly if core inflation remains high. The monetary policy tightening has driven interest rates on corporate loans and

Figure 1 Inflation falls, but core inflation is persistent
Percentages for the Netherlands (left) and euro area (right)



Sources: CBS and Eurostat.

government bonds sharply higher since early 2022 (Figure 2). A survey of European banks shows that underwriting standards for loans to businesses and households have also been tightened. The speed of the tightening has also been high in historical terms (see [Bank Lending Survey](#), ECB).

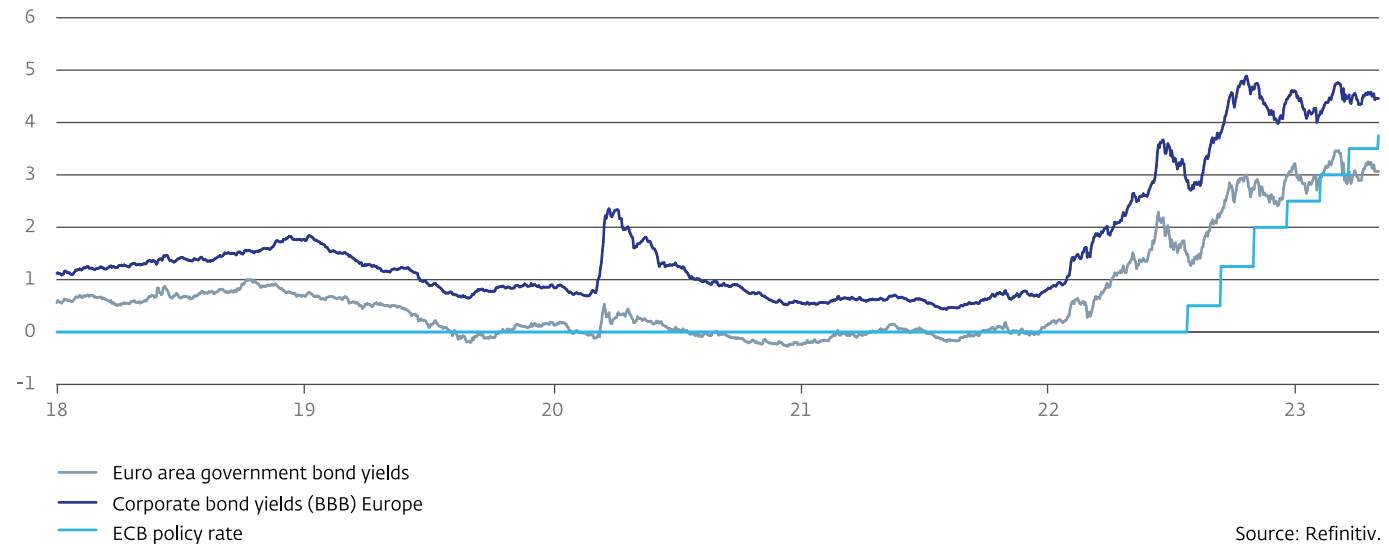
The growth in the global and the Dutch economy is slowing and geopolitical risks remain a source of uncertainty. On the surface the economy appears to have recovered from the shocks of the pandemic and the war in Ukraine. The Dutch economy has again shown resilience. The Chinese economy is also cautiously gathering momentum and supply chain disruptions have eased considerably. At the same time the tightening of financial conditions required to curb inflation is slowing economic activity.

Geopolitical tensions, due among other things to the war in Ukraine, are adding to the uncertainty. The future course of the war and its economic impact are unclear, and the trend in energy prices remains a key factor of uncertainty. The long-standing tension between the United States and China also gives rise to uncertainty. Finally, the economic uncertainty is being exacerbated by turmoil in the United States surrounding the debt ceiling. The IMF forecasts in its most recent [projections](#) that the global economy will grow by 2.8% in 2023 and 3.0% in 2024. In particular the growth of developed economies is set to slow. For example, the IMF expects the Dutch economy to grow by 1.0% and 1.2% respectively in 2023 and 2024. In [March](#) this year, CPB Netherlands Bureau for Economic Policy Analysis forecast that the Dutch economy would grow by 1.6% in 2023 and 1.4% in 2024. On 19 June we will publish our Economic Developments and Outlook, including projections for the Dutch economy.

The rapid transition from a low-for-long environment to higher inflation and interest rates is exposing vulnerabilities in the financial system. In the low interest rate environment, with very accommodative liquidity conditions, investors and financial institutions had for a long time incurred greater risks in their search for yield, often with the use of leverage. Government, businesses and households also found it easy to build up debt, but interest rate hikes may lead to losses on financial assets and refinancing problems, particularly if financial operators are insufficiently prepared for a fast-changing interest rate environment. Although higher interest rates are generally positive

Figure 2 ECB policy rate and market rate increased

Percentages



Source: Refinitiv.

for banks, insurers and pension funds, the rapid transition from the low interest rate environment may entail shocks. A related point is that financial markets may be inadequately prepared for further setbacks on the inflation front. Risky assets in particular are vulnerable to a scenario of inflation and interest rates remaining persistently higher than investors are currently expecting.

The problems at banks in the United States and Switzerland show that poor risk management in individual institutions can lead to problems and a widespread loss of confidence. The United States saw the failure of two banks, Silicon Valley Bank (SVB) and Signature Bank of New York (SBNY), and shortly afterwards UBS acquired Credit Suisse with the support of the Swiss government. This was followed over a month later by the acquisition of First Republic by JP Morgan, and tensions among regional banks in the United States have persisted. While the

problems affecting these banks are largely self-contained and contagion appears to be limited mainly to the regional banks in United States, they show that inadequate risk control can cause problems for financial institutions, for example because risk managers have become accustomed to low interest rates and taken too little account of rapid rate hikes. Furthermore, problems in individual banks can undermine trust in the financial sector as a whole, prompting investors to look for other weak links in the financial system. That was a factor particularly for the long-troubled systemic bank Credit Suisse. This led to a period of increased volatility and concerns about the health of the banking sector (see [Box 1 – Turmoil caused by failure of US regional banks and Credit Suisse](#)).

Box 1 Turmoil caused by failure of US regional banks and Credit Suisse

SVB and SBNY¹ got into serious financial difficulties in March 2023 and had to be wound up. With total assets of \$209 billion and \$110 billion respectively, SVB and SBNY were medium-sized banks by US standards. Small and medium-sized banks in the United States are subject to lighter regulation than all European banks or the largest US banks. Global minimum standards for liquidity risk (such as the Liquidity Coverage Ratio and Net Stable Funding Ratio) consequently do not apply ([FED, 2019](#)). Both banks were characterised by low cash reserves (around 5% of total assets) and funded themselves primarily with unsecured deposits from retail customers and businesses (more than 65%; [FDIC, 2023](#)). The problems started when customers withdrew large sums of deposits within a short period, whereas the banks' investments (mainly long-term bonds backed by mortgages and real estate) fell in value due to the rapid rate hikes. The banks had not set any funds aside to cover these losses; SVB, for example, was carrying more than 75% of debt securities at cost on its balance sheet. In order to meet withdrawals by depositors, the banks sold their bonds at a loss. Even more depositors then withdrew their deposits, fearing that the bank would fail. This vicious circle caused serious financial problems, as a result of which the banks could not continue as independent entities. The US authorities decided to apply

the bridge institution resolution tool to both banks (see also '[Resolution is an important safety net for failing banks](#)').

Due to the failure of these banks, investors have looked more critically at the banking sector, leading to the acquisition of the distressed Credit Suisse by UBS and the US bank First Republic by JP Morgan. Investors have scrutinised other US regional banks with profiles similar to those of SVB and SBNY, and depositors have moved their money from smaller to larger banks. The US authorities took various measures to avert the crisis, including covering all deposits for SVB and SBNY and the provision of emergency liquidity enabling banks to lend long-term debt securities at their face value. In addition, large banks placed deposits with smaller banks to signal confidence. Investors also looked more critically at banks outside the United States. Credit Suisse had long been affected by various problems concerning integrity, its business model and profitability, causing investors and depositors to move their money. Waning investor confidence prompted UBS – under the direction of the Swiss authorities – to acquire Credit Suisse. Then, in May 2023, after sustained market pressures, JP Morgan acquired First Republic, another medium-sized US regional bank.

¹ Silvergate, a small US bank with total assets of \$11 billion, also got into financial difficulty with cryptocurrency investments in March 2023 and decided to wind itself up.

Resilience of financial institutions is fundamental to safeguarding a stable financial sector. The financial sector is in a strong position from which to withstand the increased vulnerabilities in the financial system. Dutch banks are well capitalised, with an average core capital ratio of 16.3%. The average solvency ratio of Dutch insurers is also holding steady above the statutory requirements (196% and 180% for life and non-life insurers respectively). The pension funds' (nominal) policy funding ratio, at 120%, is also above the requirements.

Although the financial system as a whole has proved resilient, lessons can be drawn from the recent financial problems at individual banks. After the financial crisis the global framework for financial institutions was fundamentally reformed. Europe is still working to implement the latest reforms to the banking capital framework, also known as the Final Basel III Accord. Although previous reforms had made the financial system more shockproof, the recent turmoil underlines the importance of their full and timely implementation.² At the same time the recent bank difficulties show that regulation is never finished. For example, lessons can be drawn for the regulatory framework for banks in the field of liquidity risk, interest rate risk and resolution. And although the recent turmoil had its origin in the banking sector, recent years have shown that vulnerabilities in the non-banking sector still require close attention. These vulnerabilities emerge

particularly in an environment of financial tightening. This Financial Stability Report is mainly devoted to these recent events and the lessons that can be drawn from them. ■

² See also the [DNBulletin](#), 'Timely and consistent implementation of Basel III important for European banks'.

Financial markets

Increased turmoil on financial markets

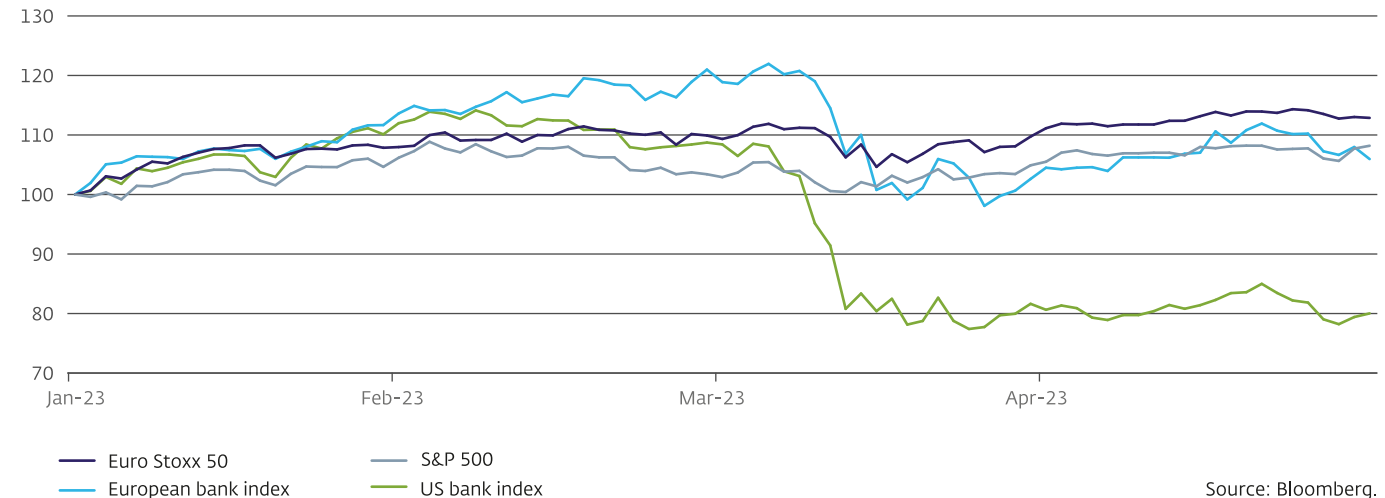
The tensions in financial markets have increased in recent months. The recent problems in the banking sector (see [Box 1 – Turmoil caused by failure of US regional banks and Credit Suisse](#)) have fuelled investor concerns about the stability of banks worldwide. As a result, European and American bank shares lost 13% and 25% respectively (Figure 3). Financing costs for banks also increased initially, mainly due to riskier debt instruments. For example, the value of issued AT1 bonds fell substantially due to uncertainty surrounding the creditor hierarchy resulting from the full write-off of these Credit Suisse bonds (see also [Resolution is an important safety net for failing banks](#)). In particular American regional banks are under constant pressure due to concerns about the profitability and sustainability of these banks' business models. The financial markets' confidence in these banks has also fallen due to the relatively light supervisory regime that applies to them.

So far, the bank stress has not spread further through the financial system and markets have recovered. Substantial intervention by the government and the relevant authorities was nevertheless required in all cases. As a result, a cautious calm appears to be returning to the financial markets. Valuations of risky assets are mostly back above the level seen before the turmoil in the banking sector. European and American equity

markets, for example, have already largely made up the losses seen in March and are now higher than in early 2023. The turmoil in the banking sector has nevertheless had consequences elsewhere in financial markets. For example, investors sought refuge in safe havens, causing yields on secure government bonds to fall sharply. Activity in riskier segments of the capital market, such as leveraged loans and private credit, has also decreased.

Figure 3 Stress in banking sector causes stock market losses for European and US banks

Index 1 January 2023 = 100



Source: Bloomberg.

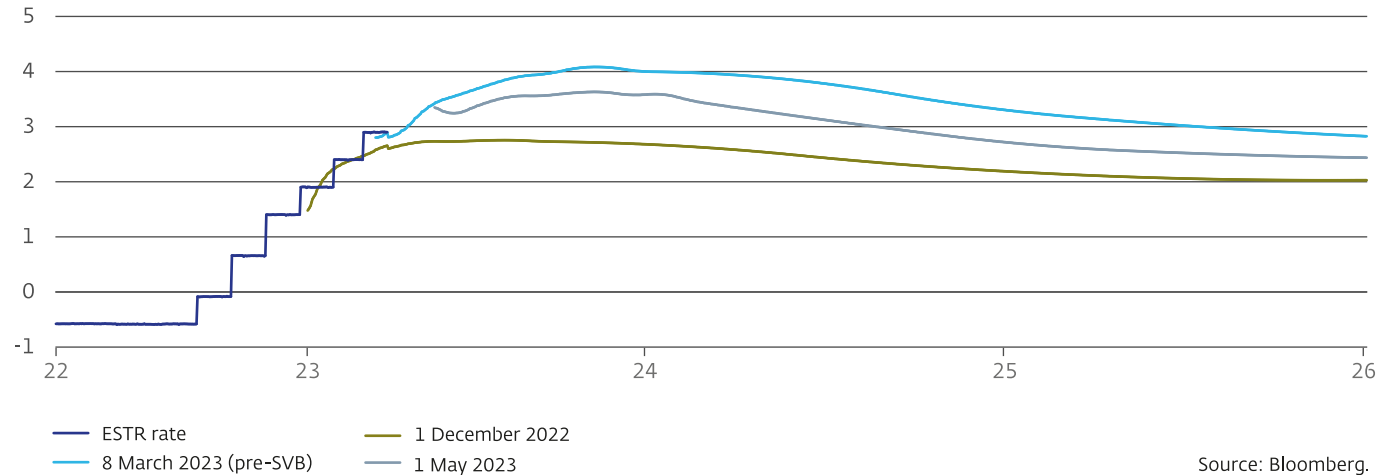
Volatility in bond markets remains high. The generally relatively calm government bond markets have been surprisingly volatile in recent months, since market operators are uncertain as to the degree of monetary tightening required to bring inflation into line with the target. Market expectations with regard to the ECB's interest rate trajectory have consequently been fluctuated in recent times, reacting sharply to new information on the state of the economy (Figure 4, see also [Box 2 'Financial markets sensitive to new inflation data'](#)). The uncertainty surrounding the economic outlook has been further exacerbated by the recent banking stress, and also because banks may have scaled back lending due to the increased uncertainty and higher financing costs. Analysts put the chance of a recession in the year ahead at around 45% in the euro area (compared to 80% earlier this year) and 65% in the United States. Bond markets are also signalling growth concerns. Short-term interest rates in the euro area and United States have for some time been higher than long-term interest rates (for example the two-year versus the 10-year yield). Such an inversion of the yield curve has in the past generally been a reliable signal of a sustained slowdown in growth or a recession.

Markets vulnerable to corrections

Investors are expecting inflation to fall back rapidly, but this expectation is highly uncertain and may again prove overly optimistic. Market-based inflation expectations suggest that euro area inflation will return rapidly to the ECB's target. Inflation swaps, for instance, are pricing in a gradual fall in inflation from the current level (7% for the euro area) before moving back

Figure 4 Market expectation on ECB interest rate path is volatile

Percentages

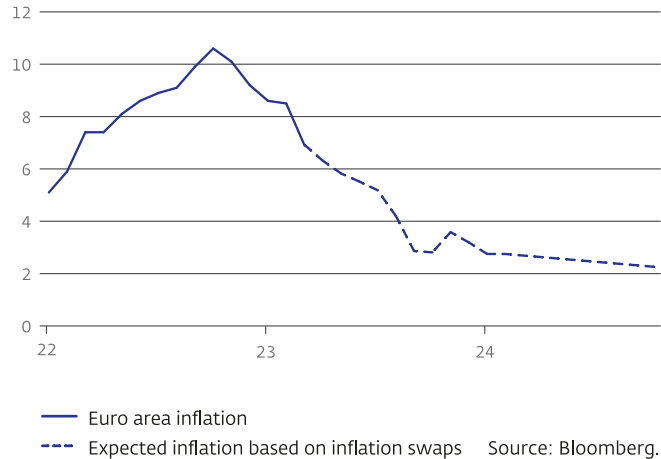


Source: Bloomberg.

towards the ECB target and reaching 2.3% in the course of 2024 (Figure 5). Over the past year the market expectation about the inflation trend was still too optimistic, however, and had to be adjusted upwards. The stubbornly high core inflation is also putting pressure on a rapid return to target. The current inflation outlook remains uncertain (see also [Box 2 'Financial markets sensitive to new inflation data'](#)). The remuneration for taking on inflation risk (derived from inflation swaps) over the medium term has consequently risen further. This points to an increased risk that inflation will remain high for a longer period, for example if the ongoing war in Ukraine leads to renewed tightness and price

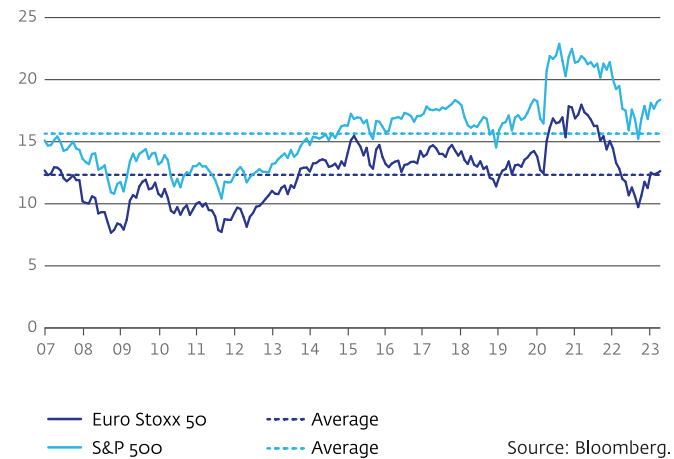
pressure in energy markets or due to second-order effects related to rising wages.

Figure 5 Markets foresee rapid fall in inflation
Percentages



If the tightening of monetary policy is stronger than currently anticipated, the chance of accidents in the financial system will increase. The recent years have seen a build-up of vulnerabilities below the surface that are now coming to light due to the rapid tightening of monetary policy. The recent problems in a number of banks are an example. In addition, risky assets in particular are vulnerable to a scenario in which inflation remains high for longer than market operators are currently expecting. In that case central banks will have to raise interest rates further or keep them high for longer than the markets are anticipating. This will increase the likelihood of a hard landing in which economic

Figure 6 Share valuations are above long-term average
P/E ratios (12-month forward-looking)



growth falls sharply. At the same time, these concerns are only partly reflected in valuations of risky assets. For example, spreads on bonds of relatively risky European companies have narrowed since the start of this year and global equity markets have risen. Equity valuations (measured by P/E ratios) in Europe are therefore around the long-term averages in Europe and markedly above them in the United States (see Figure 6). The good stock performances this year have mainly been driven by a lower equity risk premium and a slight improvement in the earnings outlook. Both factors may come under pressure this year, however, in the event of a major slowdown in growth. Market valuations of risky

assets consequently reflect little concern about the economic outlook and assume an optimistic scenario, a soft landing, in which inflation returns to target without the economy experiencing a substantial slowdown in growth.

The upward pressure on government bonds may increase further due to the central banks' balance sheet reduction and increased issuance of government paper. After central banks increased the size of their balance sheets during the pandemic, many have started to reduce their balance sheets this year as part of the monetary policy tightening. This reduction is gradual and has so far caused few problems. At the same time, liquidity on government bond markets is under pressure, government debt levels are higher and a larger part of newly issued government paper will have to be absorbed by private operators rather than central banks. Particularly highly indebted countries with relatively large financing or refinancing requirements may consequently come under pressure and encounter rapidly rising interest rates.

Box 2 Financial markets sensitive to new inflation data

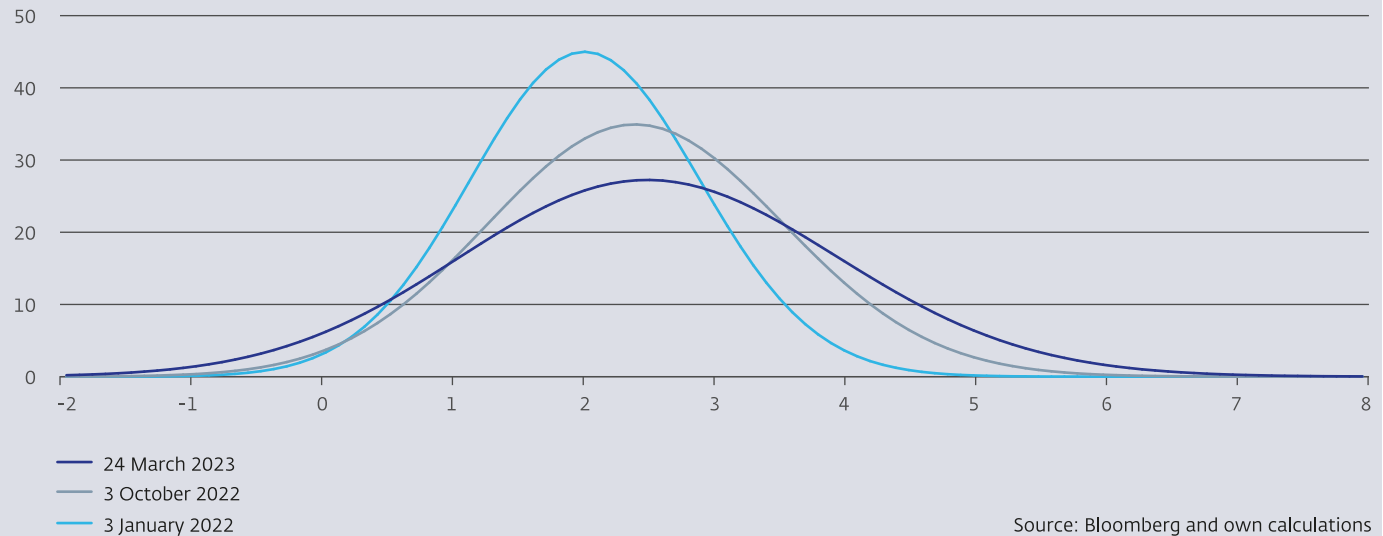
The pricing of inflation options shows that a protracted period of high inflation remains a risk in the euro area.

Based on option prices, it is possible to derive a probability distribution for the market's inflation expectations over the next five years. Financial markets still believe a scenario of rapidly falling inflation is the most likely. At the same time there is increased uncertainty surrounding this scenario, as the probability distribution has widened in the last six months despite the rapid tightening of monetary policy. The distribution points to a higher assessment of the probability of a long period of high inflation: it shows a probability of around 30% that inflation will be above 3% over the next five years, substantially higher than the 2% ECB target (Figure 7).

At the same time it is notable that yields in government bond markets are currently more sensitive to the trend in inflation data. In 2022 the war in Ukraine accelerated the rise in interest rates but increased the uncertainty surrounding the inflation outlook. Consequently, surprises in inflation data – defined as the difference between the actual inflation figure and the analysts' consensus forecast, have increased. Short-term government bonds have shown surprisingly strong reactions to surprises inflation data since 2022.

Figure 7 Distribution of 5-year inflation expectations signals high uncertainty around inflation and tail risk

Percentages



Source: Bloomberg and own calculations

For example, the sensitivity of the German two-year yield to core inflation data – inflation excluding energy and food – even reached an all-time high.³ For every 10% increase (decrease) in the relative inflation change, the two-year German Bund yield rises (falls) by an average of 3.8 basis

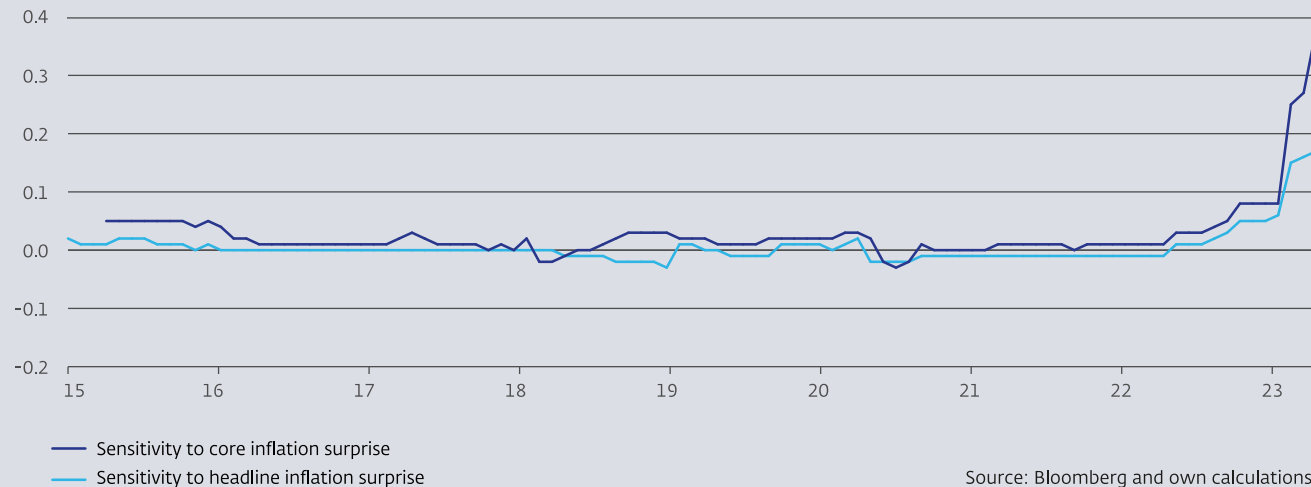
points (Figure 8). The higher sensitivity of financial conditions to inflation expectations is consistent with the ECB's emphasis on a data-dependent approach to policymaking in its communication since last summer.

³ This sensitivity is measured using a regression analysis with the explanatory variable being surprises in inflation data and the dependent variable being changes in the bond yield. A regression with a rolling window (24 months) has been used to measure changes in sensitivity over time. Since surprises have generally been greater during periods of high inflation, a correction is applied for this in the regression analysis by dividing the inflation surprises by the expected inflation level.

Market participants adapt their expectation for bond valuations rapidly in response to surprises in the data, causing yields to become more volatile. This volatility means that investors encounter substantial price movements in normally relatively stable markets. This can lead to unexpectedly large losses, particularly when leverage is used.

Figure 8 Sensitivity of interest rates to surprises in core inflation rates reaches peak

Regression coefficient



Housing market cools down

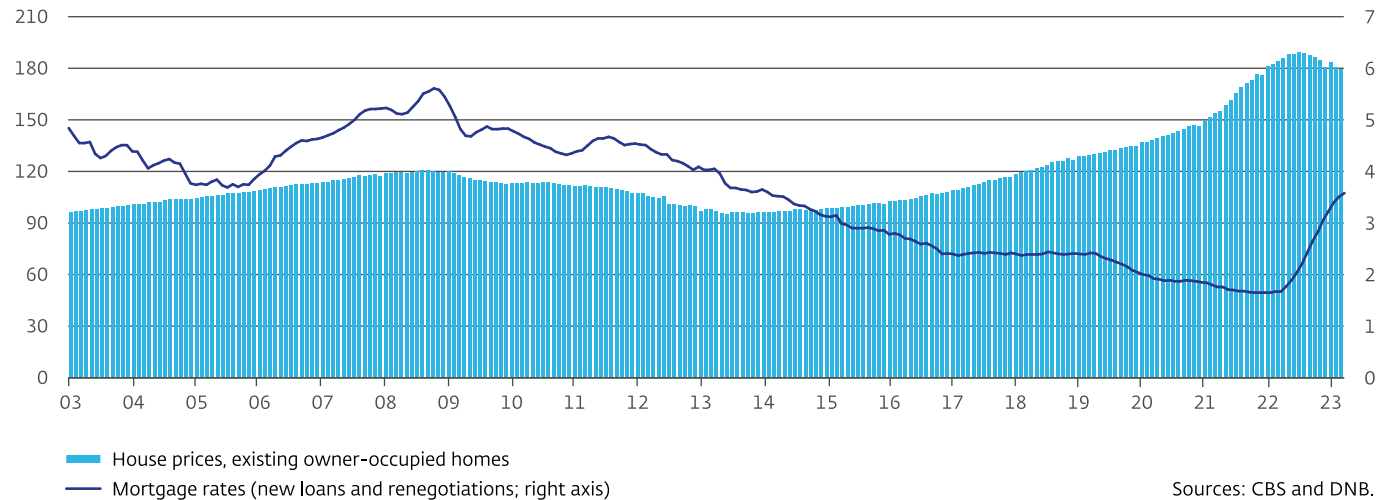
Sharp rise in mortgage interest rates leads to fall in Dutch house prices. This brings to an end a decade of continuous house price growth (see [CBS](#)). In the period from June 2013 to July 2022 nominal house prices in the Netherlands grew by 99%. A major driver of these price rises has been the increased financing capacity due to income growth and low interest rates, according to a recent [study](#) by DNB. Government policy over this period was also aimed at stimulating home ownership. Since supply lagged behind demand, this policy pushed prices higher. In July 2022 house prices reached record levels, since when they have fallen month on month (Figure 9). Between July 2022 and March 2023, nominal house prices have fell 5%, with the largest part of the fall occurring between August and December 2022. Compared to 2021, the number of transactions fell by 15% in 2022 (see [Statistics Netherlands](#)). The proportion of transactions above the asking price fell from 82% in the second quarter of 2022 to 31% in the first quarter of 2023 (see [NVM](#)). The cooling of the housing market was driven by interest rates hikes as part of the European Central Bank's monetary policy tightening. The average mortgage interest rate in the Netherlands was 3.6% in February 2023; 200 basis points higher than in the previous year.

The limited cooling of the Dutch house market poses no immediate stability risks. The current cooling reduces the risk of overvaluation. Some fall in house prices is therefore desirable. Compared to the financial crisis in 2008, Dutch households are also more resilient to a negative shock. Mortgage debt is lower relative to disposable income (see [OECD](#)) and households have more savings (see [Statistics Netherlands](#)). The limited growth in debt can also be seen in the lower loan-to-value (LTV) ratio of banks' mortgage portfolios. The labour market also remains historically tight, with unemployment at 3.5% in March 2023. Although recent wage growth (5% in the first quarter of 2023; see [CBS](#)) therefore only partly compensates for inflation, this nominal wage growth does create more borrowing capacity and puts upward pressure on nominal house prices ([DNB, 2023](#)). Higher costs due to interest rate hikes are also being passed on only gradually in households' financing costs. For households that have fixed their interest rate for more than 10 years, the interest rate in February 2023 was generally still below the interest rate prevailing at that time (Figure 9). These households are therefore less likely to face higher mortgage expenses when fixing a new rate of interest.

Certain households are vulnerable, however. With the high inflation and higher expenses, households have less disposable income to meet their mortgage costs. That applies particularly to households who pushed the borrowing limits to purchase a home in recent years. The number of households who have fixed the interest rate for a new mortgage for longer than 10 years has also

Figure 9 Fall in house prices follows increase in residential mortgage rates

Price index: 2015=100, percentages



fallen from 60% in June 2022 to 29% in February 2023 (see [DNB Statistics](#)). If interest rates rise further and house prices see protracted sharp falls, more households will also be at risk of going into negative equity, with the mortgage debt exceeding the value of the home. These risks are explained in detail in the [Autumn 2022 FSR](#). In the past it was also found that developments in the Dutch housing market have a major impact on consumer confidence and consumption ([DNB, 2018](#)). House prices consequently have a negative, procyclical effect on the real economy of the Netherlands. Inflation and high interest rates are

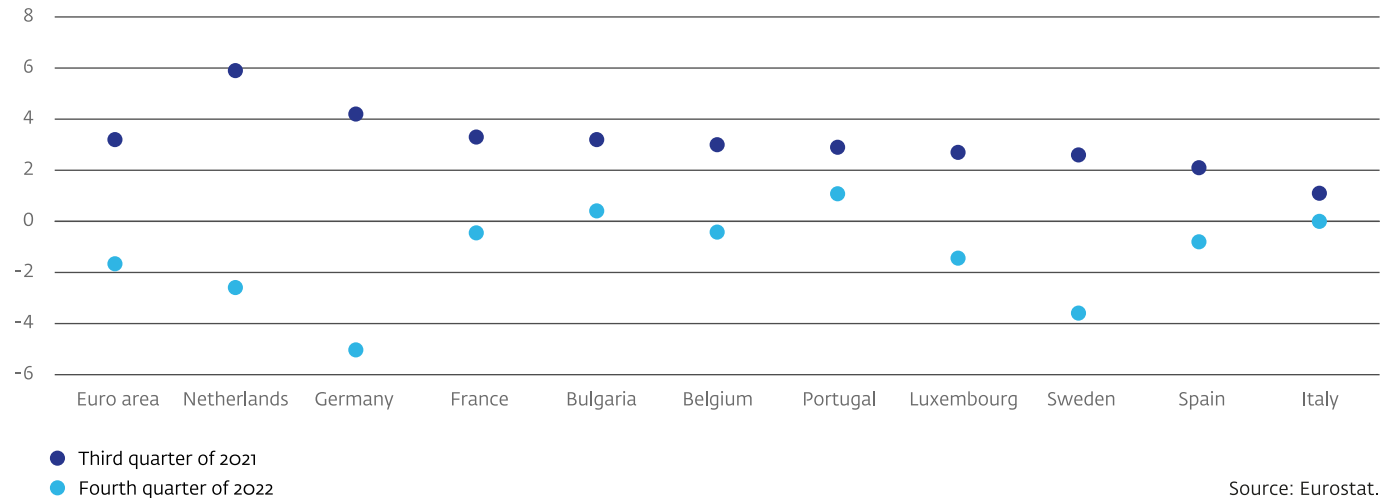
currently high worldwide, causing house price growth to slow also in other countries. In mid-2021, nominal house prices in European countries were still rising substantially on a quarterly basis, but over a year later they were falling or unchanged compared to the previous quarter (Figure 10). The risk of a further fall in house prices will be greater if there is a synchronised worldwide tightening of monetary policy.

Commercial real estate is under pressure

Growing cyclical and structural risks lead to falling prices in the commercial real estate market. The property market is more sensitive to changes in financing conditions than the housing market, because demand for commercial premises is driven primarily by expected yields. The outlook for yields has recently deteriorated due to the rising financing and construction costs: in 2022 interest on new commercial real estate loans was around two percentage points higher than in the previous year. In addition, construction costs rose by 8.4%, mainly due to higher material costs. Higher costs may lead to less new investment in the real estate market in the short term, and to cost overruns and delays in the completion of ongoing projects. In addition to the increase in cyclical risks, real estate investors face higher structural risks, such as permanent changes in demand for commercial space due to the pandemic (with increased homeworking and digitisation) and new legislation, such as the bill to regulate mid-market rents, a rise in transfer tax (from 8% to 10.4%) and a lower cap on rent rises (linked to wage growth rather than inflation).

Figure 10 Nominal house prices decline in several European countries

Quarterly percentage changes



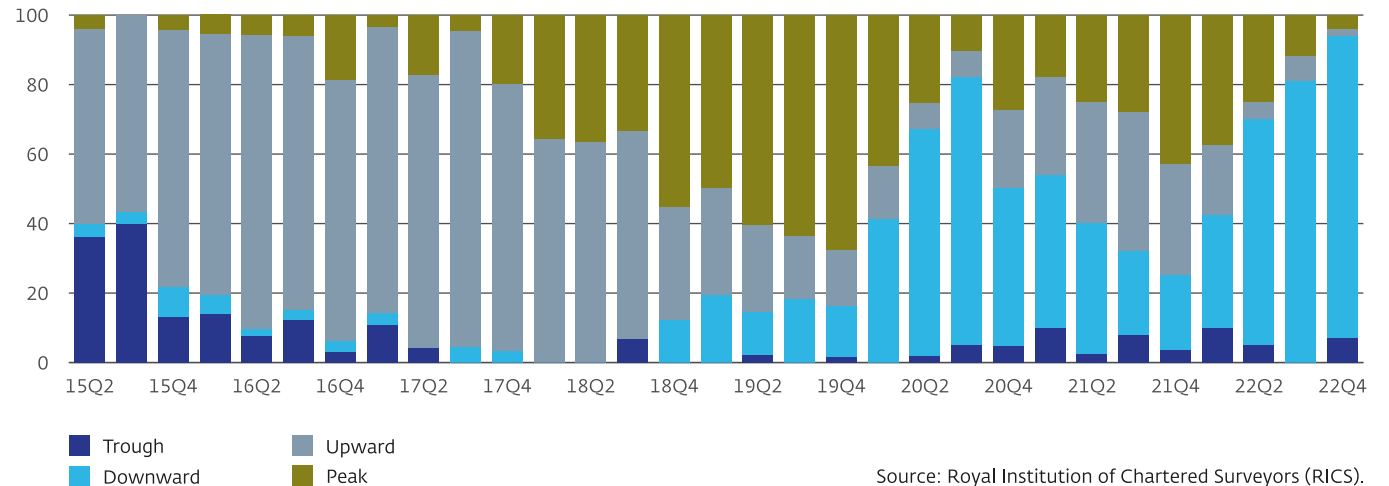
Source: Eurostat.

The current price pressure on the commercial real estate market is not giving rise to immediate financial stability concerns.

The first signs of a correction can be seen in both the number and value of transactions. MSCI and land registry data show a 1% decline in appraisal values and a 30% fall in the number of transactions (see [CBS](#)). Investors believe the Dutch real estate market is on a downward trend (Figure 11) and expect further price falls, but this will not directly pose any major risks to financial stability. On the one hand the deterioration in financing and market conditions leads to higher credit risks for financial institutions. As stated in the [Autumn 2022 FSR](#), nearly 52% of real estate exposures have to be refinanced between 2022 and 2024, and rental income may lag behind inflation. On the other hand commercial real estate loans still make up a limited part (10%) of banks' assets and their risk characteristics have improved substantially in recent years. For example, the proportion of non-performing loans fell from 7% in 2016 to 3.5% in 2022 and the proportion of loans with a high LTV fell from 20% in 2020 to 13% in 2022. Vulnerabilities in open-ended investment funds may nevertheless lead to an increase in risks. If these funds experience large-scale withdrawals, this could potentially trigger the forced asset sales, which could in turn exacerbate a price correction in the commercial real estate market (see also '[Vulnerabilities in the non-banking sector need to be monitored](#)'). ■

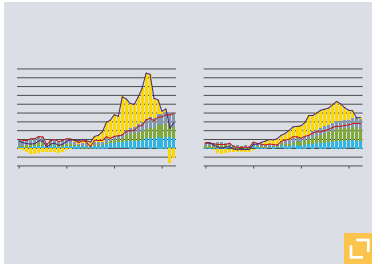
Figure 11 Investors are downbeat about Dutch property market developments

Percentage of respondents

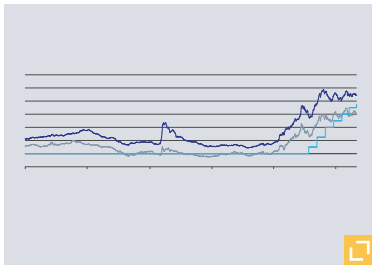


Source: Royal Institution of Chartered Surveyors (RICS).

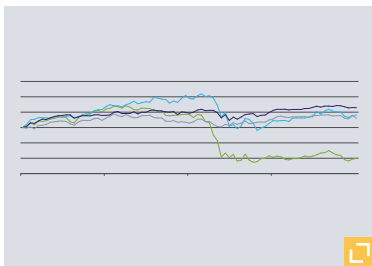
Figures



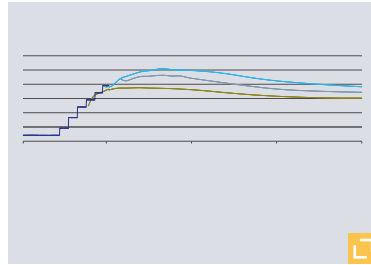
Inflation falls, but core inflation is persistent
[See figure 1 →](#)



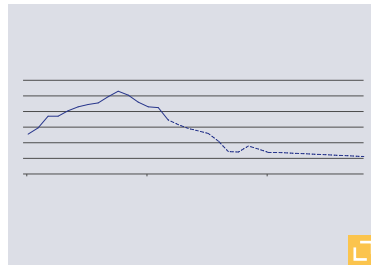
ECB policy rate and market rate increased
[See figure 2 →](#)



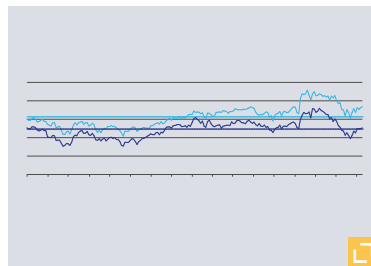
Stress in banking sector causes stock market losses for European and US banks
[See figure 3 →](#)



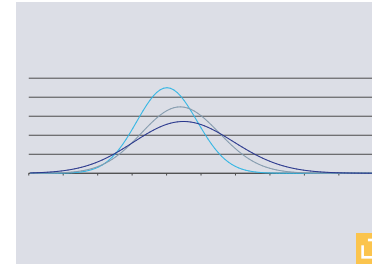
Market expectation on ECB interest rate path is volatile
[See figure 4 →](#)



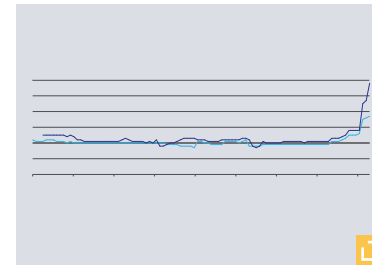
Markets foresee rapid fall in inflation
[See figure 5 →](#)



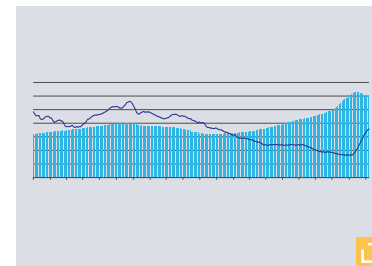
Share valuations are above long-term average
[See figure 6 →](#)



Distribution of 5-year inflation expectations signals high uncertainty around inflation and tail risk
[See figure 7 →](#)

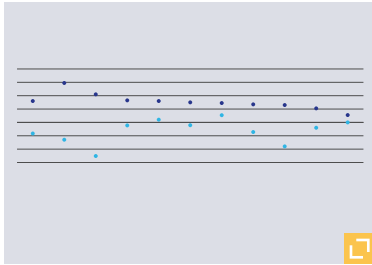


Sensitivity of interest rates to surprises in core inflation rates reaches peak
[See figure 8 →](#)

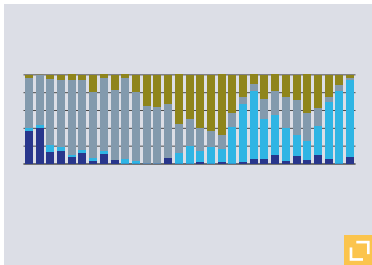


Fall in house prices follows increase in residential mortgage rates
[See figure 9 →](#)

Figures (follow-up)



Nominal house prices
decline in several
European countries
[See figure 10 →](#)



Investors are downbeat
about Dutch property
market developments
[See figure 11 →](#)

Financial institutions

Banks are well capitalised and resilient, but risks are growing

Banks are well capitalised and start from a strong position.

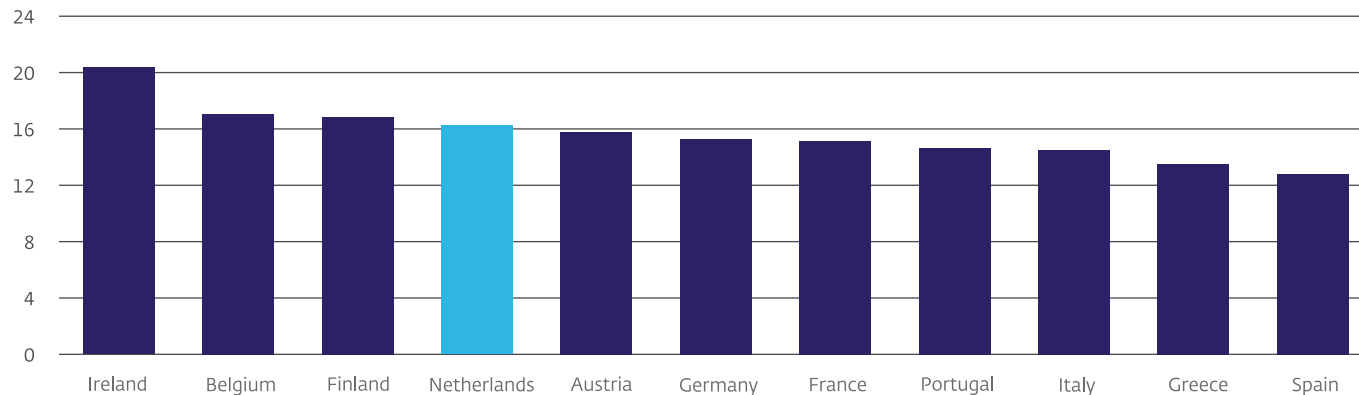
The capital and liquidity positions of the Dutch banking sector are currently well above the minimum requirements. For example, the Common Equity Tier 1 ratio (CET-1 ratio) is at 16.3%, in line with the European average (Figure 12). Although the financial system

has been put to the test several times in recent years, the Dutch banks' starting position remains strong. This resilience is partly due to reforms of the capital framework after the financial crisis. The lessons from the global financial crisis are just as relevant today. It is therefore important that the European Union fully implements the agreed reforms of the banking capital framework (Final Basel III Accord).

The risks of debt sustainability problems are increasing, however, among both businesses and households. Rising interest rates feed through fairly quickly into higher financing costs for businesses. Around 38% of total corporate debt in the Netherlands is due to mature or be subject to an interest rate review within one year. These businesses will face higher interest charges and possible liquidity risks when refinancing. Credit quality has so far remained robust. For example, the percentage of corporate loans designated as non-performing at the end of 2022 (Stage 3 loans) has remained low at just 3.1%. The proportion of corporate loans with an increased payment risk (Stage 2 loans) is 13.4% lower than during the coronavirus crisis (15.2% in mid-2020). In the event of sustained inflation, higher interest rates and economic headwinds, however, more businesses will get into difficulty. The same applies to households. As a result of the rise in interest rates and higher costs of living, there is an increased risk that certain groups of households will be unable to meet their mortgage obligations. These effects are only expected to be visible in loan portfolios over the longer term. Banks must therefore continue to monitor their loan portfolios carefully to identify potential payment problems in time.

Figure 12 Dutch banks are well capitalised

Core capital (CET1) as a percentage of risk-weighted assets, 2022-III



Source: ECB.

Banks are nevertheless also resilient in stress scenarios.

We have applied a stress test to assess the resilience of four major Dutch banks against both solvency and liquidity risks (see [Box 3 'Major banks can withstand negative scenario and confidence shock'](#)). In this stress test we examined the impact of a negative macroeconomic scenario with high, persistent inflation, a further rise in interest rates and a protracted recession. We also calculated the impact of a negative confidence shock on the liquidity position. In the stress scenario, the capital and liquidity positions of the banks deteriorate but remain above the required minima. The results show that the four major Dutch banks are resilient and unlikely to get into difficulty, since they start from a strong position.

Box 3 Major banks can withstand negative scenario and confidence shock

We use a stress test to assess the resilience of the Dutch banking sector against liquidity and solvency risks. On the basis of the stress test, there is a negative but plausible macroeconomic scenario for the period 2023-2025. In this scenario the economy performs worse than is currently expected. This puts the solvency of financial institutions under pressure. This scenario also includes a negative confidence shock, causing households and businesses to withdraw a large part of their deposits from banks. In the stress test we calculate the impact of this scenario on the capital and liquidity position of the four major Dutch banks. This gives us insight into the resilience of both the solvency and liquidity of the Dutch banks.

In the stress scenario interest rates rise further, causing the economy to enter a long-term recession.⁴ In this scenario inflation remains very high in 2023 and 2024 and interest rates rise further. 10-year interest rates rise by around 200 basis points compared to the end of 2022 and reach 4.4% in early 2024. Higher interest rates combined with a negative confidence shock lead to price corrections in capital and real estate markets: share prices fall in 2023 by 12% and house prices fall by almost 12% over the period as a whole. The economy enters recession: GDP contracts slightly in 2023 and 2024 and unemployment rises to almost 5.5%.

At the end of the period the economy stabilises and inflation falls back towards 2%.

An important assumption is that the further interest rate rises will feed through into higher deposit interest rates. Hitherto banks have only passed on higher interest rates to a limited extent in saving rates, so net interest income has risen (see Regulation encourages the management of banks' interest rate risk'). In this stress test we assume that banks – under pressure from growing competition – will increase deposit interest rates by the full amount of the rise in market rates and in the case of retail customers will raise the savings rate by three-quarters of that rise. This assumption substantially limits the extent to which banks can take advantage of rising interest rates. In comparison with the [EBA 2023 stress test](#) this assumption concerning deposit interest rates is on the strong side and the macroeconomic scenario is in fact less severe.

In this stress scenario, the average CET1 ratio of four major Dutch banks falls by 3.8 percentage points over the next three years. Figure 13 shows the development of banks capital ratios over the next three years. The banking sector's CET1 ratio amounted to 15.2% at the end of 2022. In this scenario banks remain profitable, but profitability decreases substantially compared to 2022. This effect is strongest at the

⁴ This macroeconomic scenario was compiled using [DELFI](#) and is based on the assumptions in the alternative scenario from the December 2022 EOV.

beginning of the scenario, because the interest income that banks receive on assets rises more slowly than the interest they have to pay on existing liabilities. Net interest income and earnings consequently fall. In 2024 and 2025 earnings recover somewhat due to higher interest rates on new loans. Credit risks increase substantially in this scenario. The combination of GDP contraction, higher unemployment and higher interest expenses leads to more defaults among businesses and households. These are accompanied by larger credit losses as a result of falling prices of houses and real

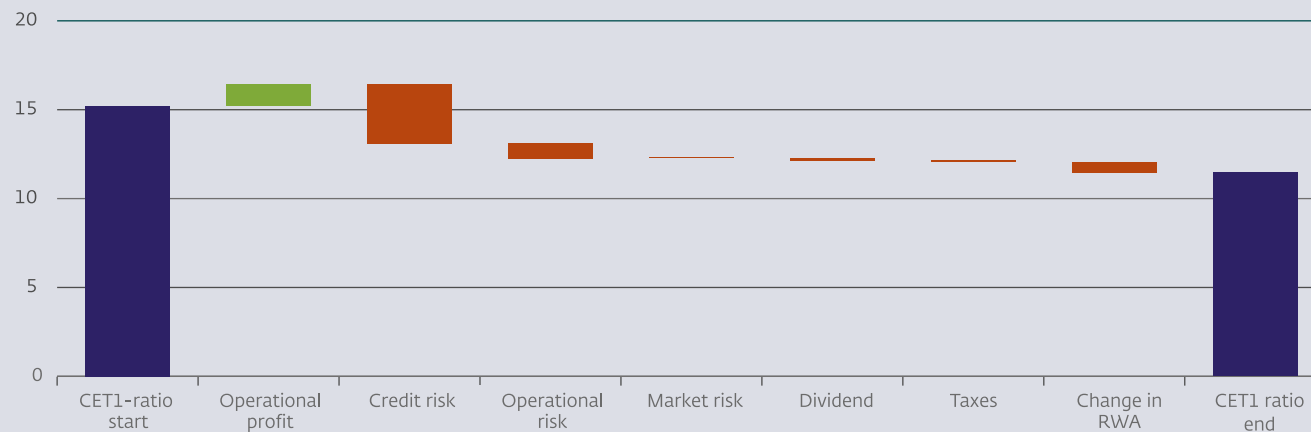
estate. The higher credit risk also leads to an increase in risk-weighted exposures, and hence to a further decline in the CET1 ratio. The losses on market risk are mainly caused by the impact of higher interest rates on assets carried on banks' balance sheets at market value. Losses due to operational risks, taxes and dividend payments also cause a decline in the CET1 ratio. Taken together, these factors take these banks' CET1 ratio to 11.5% at the end of 2025. Major Dutch banks' CET1 ratio thus remains above the minimum requirement of 8%.

We also calculate the consequences of higher interest rates combined with a negative confidence shock on these banks' liquidity positions. We assume that households and businesses will withdraw a substantial part of their deposits from banks and place them with foreign banks or non-bank financial institutions. This may be because confidence in the banks plummets, but also because other financial institutions offer higher returns or businesses find it harder to access credit.

In this scenario the outflow of liquidity increases sharply, while the volume of liquid assets decreases due to higher interest rates. In the stress test we assess how an increased outflow of liquidity over a 30-day period affects the liquidity position of four major Dutch banks. In this scenario business customers withdraw 80% of their unsecured deposits from banks, similar to the outflow recently seen in the case of SVB. Households also withdraw part of their savings. 10% of the stable deposits covered by the DGS are withdrawn and 20% of the less stable deposits. In addition the market value of the counterbalancing capacity, unencumbered assets that banks can use to absorb the liquidity outflow, falls by 10% to 60%, depending on the type of asset.⁵

Figure 13 Capital ratios of four Dutch Significant banks remain above minimum required level

Percentage of risk-weighted assets



Source: DNB calculations.

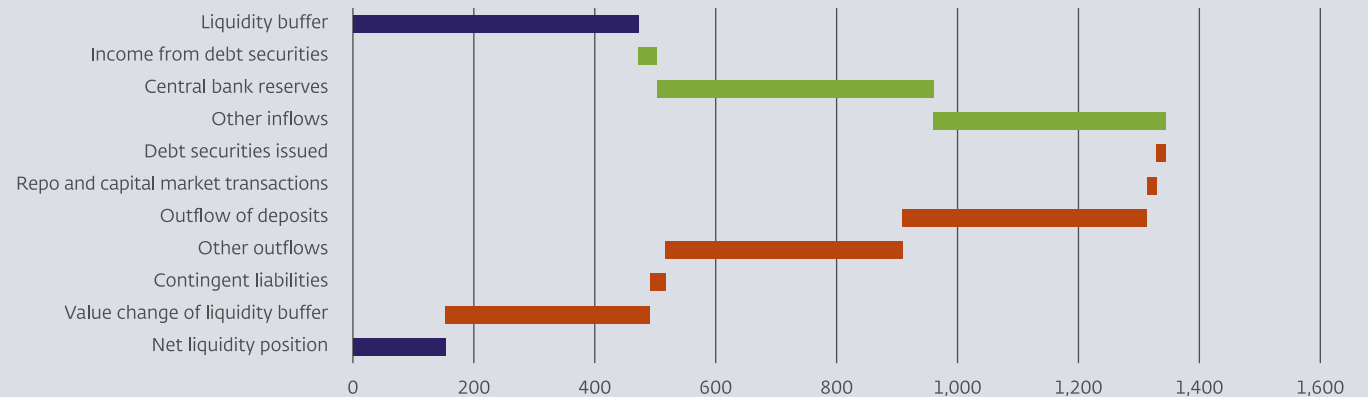
⁵ We apply the haircuts prescribed in the LCR rules. We also assume that the rise in interest rates in the macroeconomic scenario leads to an additional 10% fall in asset values.

In this severe scenario, the liquidity position of the four major Dutch banks deteriorates substantially, but remains positive. Only one-third of the banks' total counterbalancing capacity remains after 30 days (see Figure 14). The impact in the severe scenario is manageable. This is due particularly to the relatively large proportion of deposits covered by the deposit guarantee scheme (DGS). There are differences between banks, but all banks remain able to meet their liabilities in this severe scenario. It should be noted that a number of assumptions make this scenario exceptionally severe. For example, we do not take into account the fact that banks largely hedge their interest rate risk and hence receive income from their derivative positions if interest rates rise. We also assume that the confidence shock has an equally severe impact on all banks, whereas in reality at least part of the deposits will shift to other (possibly Dutch) banks.

In a situation of acute liquidity stress, banks may suffer additional losses due to forced asset sales. If a bank does not have sufficient liquid assets to meet all deposit withdrawals, it may be forced to sell part of its assets. A bank may thus face additional losses, for example because the market value of the assets is lower than the book value or because the market value falls due to large-scale selling. The potential unrealised losses on the sale of hold-to-maturity

Figure 14 Liquidity positions of four Dutch Significant banks deteriorate sharply in stress scenario, but remain positive

EUR billion



Source: DNB calculations.

assets for the four major Dutch banks at the end of 2022 is on average over 4% of the available CET1 capital. In the stress scenario this amount would increase further due to the interest rate rise. Furthermore, before they resort to this sale option, banks would try to obtain their liquidity in other ways, for example by first selling other liquid assets or by pledging assets as collateral for transactions with the central bank.

Regulation encourages the management of banks' interest rate risk

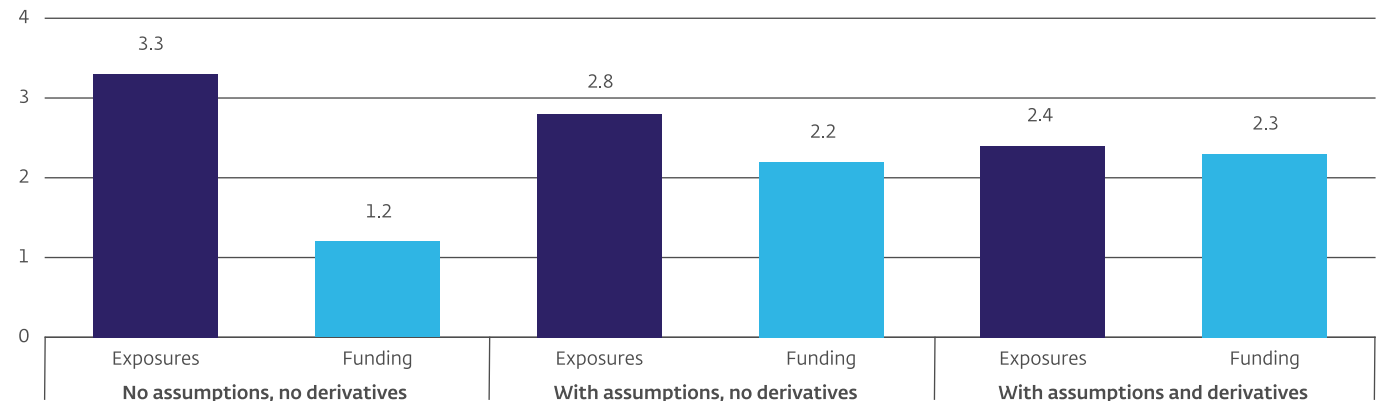
Uncontrolled interest rate risks can lead to financial stability risks. Interest-rate risk is an inherent part of the banks' business model and occurs when a change in market interest rates negatively impacts the (potential) profitability and economic value of the bank. The main way in which a bank can generate income is by receiving higher interest for money it lends (lending rate) than the interest on money that it raises (funding rate). An average of 67.7% of Dutch banks' income comprises net interest income. Banks regularly lend for longer periods and fix the lending rates for a longer period (the fixed-interest rate period), but the bank's funding is more short-term: a depositor who has placed money with the bank can withdraw it in a shorter period and the funding rate is fixed for a shorter period. If rising market interest rates translate into higher funding rates, the margin between the lending and funding rates may rapidly diminish. If banks do not hedge this risk sufficiently, changes in market interest rates may lead to substantial losses and, in the worst case, even to bank failures, as illustrated by the recent situation of regional banks in the United States. The collapse of SVB also led to an outflow of (unsecured) savings deposits from other regional banks in America. Such a situation is unlikely to arise in the Netherlands, because Dutch banks have to comply with relatively strict European supervisory limits and guidelines to limit and control this risk.

Dutch banks actively manage risks of changes in market interest rates. Since Dutch banks usually grant mortgages and loans with a long fixed-interest period against short-term funding, there is a large maturity mismatch (left-hand side of Figure 15). Banks consequently incur a risk of income losses if interest rates rise and they therefore try to control this risk. This broadly takes place in two stages. First, the bank estimates the actual maturity difference (centre of Figure 15). To do so it calculates how much to expect in terms of early redemptions and loan repayments. Based on historical data and assumptions, the bank estimates the time

between a rise in the market interest rate and the increase in interest on savings. European regulations and supervision aim to ensure that banks make cautious and realistic assumptions when determining customer behaviour. On the basis of behaviour models, the four major banks estimate that the maturity mismatch between exposures and funding is in practice shorter than would be assumed on the basis of the contractual term. On the assets side, the term is estimated at 2.8 years instead of 3.3 years, and on the liabilities side 2.2 years instead of 1.2 years. The remaining maturity difference between 2.8 years on the asset side

Figure 15 How Dutch banks are reducing their maturity mismatches

Average maturity in years



Source: ECB STE interest rate risk.

and 2.2 years on the liabilities side is hedged using interest rate derivatives, with the bank receiving a variable interest rate and paying a fixed interest rate (right-hand side of Figure 15). With these interest rate derivatives the major Dutch banks reduce the maturity mismatch by an average of six months, because the assumed term on the assets side is still 2.4 years and on the liabilities side 2.3 years. Pension funds and insurers are often the counterparty of banks' interest rate derivatives, because they incur an opposite interest rate risk. The residual maturity mismatch is around one month.

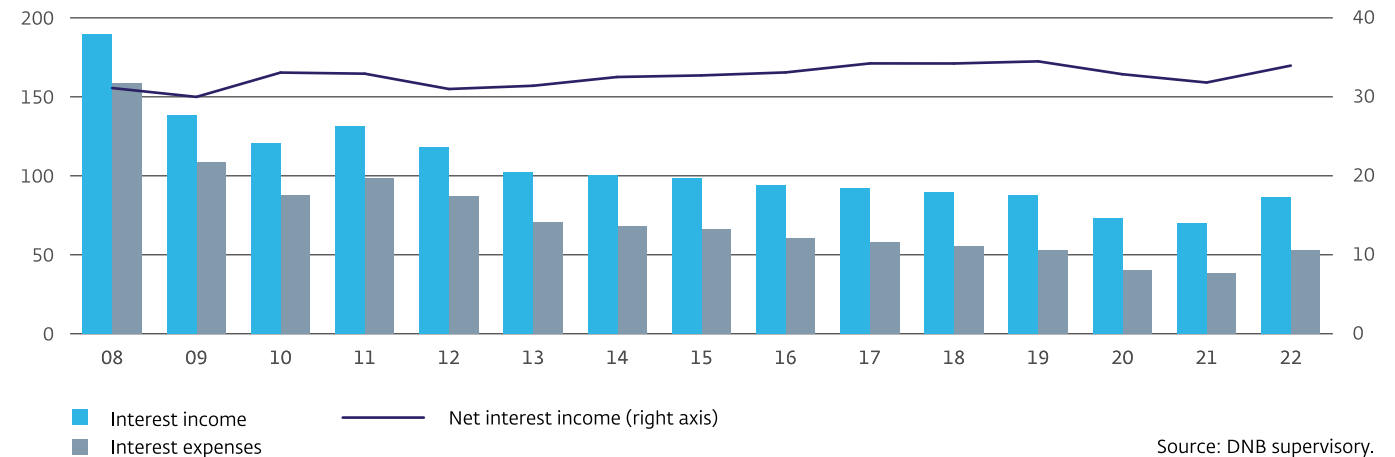
Dutch banks are benefiting from the rise in interest rates for the time being, because they can raise their savings rates fairly slowly. The net interest income of Dutch banks increased by 6.7% in 2022 compared to 2021 (see Figure 16), mainly because banks only passed on market interest rates to a limited extent in their savings interest rates. Banks have less need to attract savings due to the ample liquidity in the system. The Dutch market also has less competition from non-banks than the savings market in the United States, for example, where money market funds play an important role in attracting savings. This means savings interest rates in the Netherlands rise relatively slowly when market interest rates rise and the volume of savings at banks holds up (see DNB, 2023). The current situation with rising net interest income and profitability cannot be assumed for a fact in the future, however.

The recent period of turmoil underlines the importance of European regulation for the management of interest rate risk and the need for conservative assumptions about customer behaviour. In Europe the Basel standards for interest rate risk have been introduced through the institution-specific Pillar 2 requirements and apply to all banks. Under Pillar 2 requirements the supervisory authority has greater freedom to assess the risk for the specific bank (see also [Box 5 'Capital framework for European banks'](#)). In the case of interest rate risk all European banks are nevertheless subject to a limit in terms of the amount of

economic capital they are permitted to lose in the event of interest rate shock. These limits specify the interest rate scenarios and the method used to measure the impact. The supervisory authority can also retrospectively verify the customer behaviour models that the bank uses to measure the interest rate risk. A draft law is also currently with the European Commission to introduce a limit on the loss of net interest income in the event of an interest rate shock, making the EU framework more prudent than the Basel standard. The recent cases show the importance of regulation governing interest rate risk in order to strengthen

Figure 16 Net interest income holds up well

EUR billion



Source: DNB supervisory.

banks' resilience and limit the risk of contagion. For example, in the case of SVB there were no supervisory limits and no obligation to report interest rate risk to the supervisory authority. At the end of 2021 SVB's interest rate risk exposure was reportedly more than twice the supervisory limit in Europe ([SVB, 2022](#)). In addition these cases show that banks must look carefully at their assumptions with regard to the actual maturity of deposits. Capital buffers are also required to absorb uncertainty concerning estimates of customer behaviour.

In order to promote global harmonisation, it is worth exploring the possibility of including interest rate risk in the Pillar 1 requirements. If interest rate risk were included in Pillar 1, it would become part of the minimum capital requirements and capital would be held automatically to cover this risk. It would also lead to a requirement for the supervisory authority to approve models that banks use to estimate customer behaviour. This could contribute to increased market confidence in banks, with less volatile deposits. The disadvantage of including the interest rate risk framework in Pillar 1, however, is that there is less scope to take account of specific characteristics of the jurisdiction or the bank, such as contractual rights of customers to repay their mortgage early. We therefore call on the Basel Committee to explore the advantages and disadvantages of a Pillar 1 approach.

Liquid assets are readily available, but assumptions of standards need to be reviewed

Recent events have again put the spotlight on liquidity risk. The recent experiences at SVB and Credit Suisse show to what extent banks can be vulnerable to a rapid and sudden outflow of deposits. It also shows how important it is that banks are able to gauge and control these risks, and that the supervisory authority has oversight.

Control of liquidity risk is even more important now that a period abundant liquidity is coming to an end. Partly due to the accommodative monetary policies of central banks around the world, banks have operated with large and stable liquidity buffers in recent years. The monetary tightening and balance sheet reduction currently taking place to curb inflation means there is less liquidity in the system. In the case of European banks the reduction in TLTRO-III operations (a relatively favourable form of long-term financing to support lending) will also put downward pressure on liquidity. European banks must therefore also take the consequences of this into account in their funding plans.

The introduction of global liquidity standards after the credit crisis has improved banks' resilience to liquidity risks. The liquidity coverage ratio (LCR) and the net stable funding ratio (NSFR) were introduced in response to the credit crisis. The first criterion ensures that banks maintain sufficient liquidity reserves to absorb an outflow for one month, even in periods of stress. The second measures whether banks hold sufficiently stable funding

against the assets on their balance sheets over a one-year horizon. It has been agreed at a global level that these minimum standards must apply to banks operating internationally (see [BCBS](#)). Unlike in the United States, where only the largest banks are subject to these liquidity requirements (see also Box 1 'Turmoil caused by failure of US regional banks and Credit Suisse'), in Europe these requirements apply to all banks.

Dutch banks currently more than meet the liquidity requirements and therefore have highly liquid assets at their disposal. All Dutch banks have an LCR and NSFR ratio of more than 100%. The average weighted LCR ratio of Dutch banks is 157% (March 2023) and the average weighted NSFR ratio is 134% (December 2022). A key part of the liquidity requirements is the liquidity buffer; this is the amount that banks already have available or can access rapidly (for example by selling assets) in order to meet their liabilities. In the case of Dutch banks the liquidity buffer mainly comprises central bank reserves and cash (67% of the liquidity buffer). A much smaller proportion of the buffer comprises bonds (25% of the liquidity buffer), which are partly carried at amortised cost on the balance sheet. Regardless of the accounting treatment, banks are obliged to include assets at market value in the liquidity buffer. Hence there is only a small risk that banks will have to sell these securities to create liquidity and consequently suffer unexpected losses, as in the case of SVB. Dutch banks hedge the risks of losses in the value of bonds (at least in part) through derivatives. Finally, banks must demonstrate

that they are able to liquidate the bonds rapidly; there must be no practical impediments to doing so.

Dutch banks are less dependent for their funding on unsecured deposits, which have become more volatile than had been assumed in the past due to digitisation. Deposits of households and businesses (55% of the total balance sheet) are the main funding source for Dutch banks. A large part of the deposits (58%) are covered by the deposit guarantee scheme. This means that holders of these deposits are covered for up to €100,000 and will therefore be reimbursed in the event of a bank collapse. It is assumed that these will flow out less rapidly, so low outflow percentages are assumed in the LCR and NSFR. With regard to the other, unsecured deposits, 17% comprise current accounts of businesses that cannot be moved so quickly (known as operational deposits). It should be noted that depositor behaviour is now harder to predict than when the liquidity standards were designed 10 years ago. The rise of social media, the ease with which new accounts can be opened and the speed at which money can be transferred by means of online banking and bank apps, 24 hours a day, are factors that may accelerate an outflow compared to assumptions made 10 years ago.

Depending on a bank's risk profile, the supervisory authority may impose additional requirements. The LCR describes just one

type of stress scenario and cannot cover all risks. Banks and supervisory authorities therefore also look at other criteria. For example, banks must make their own internal assessment of all liquidity risks (including concentration risk) and ensure that it is properly managed. The supervisory authority will maintain oversight of this and where relevant can impose additional liquidity requirements (Pillar 2) complementing the LCR and NSFR. For example, we have imposed an additional liquidity requirement on all smaller banks whereby they must be able to withstand a six-month survival period based on their own internal stress test. Additional, institution-specific liquidity requirements have also been imposed on some banks based on their risk profile.

A number of important lessons can be drawn from recent banking problems. First, these recent events (see also [Box 1 'Turmoil caused by failure of US regional banks and Credit Suisse'](#)) emphasise the benefit of applying the Basel III framework to all banks, because problems at smaller banks may also trigger a chain reaction in certain cases. Second, it is clear that regulation is never finished: for example, regulators and the Basel Committee should re-examine whether existing liquidity requirements are still appropriate and in particular whether the outflow percentages for deposits are still correctly calibrated. The current liquidity standards already distinguish between different types of deposits depending on their characteristics (including the amount of the

savings and the relationship between the bank and the customer), because the volatility of these deposits differs. In today's digital world it has become easier to transfer money directly: this may be a reason to apply higher outflow percentages than those currently assumed in the case of certain (unsecured) deposits. In addition, there must be a sufficient guarantee that the accounting classification of bonds forming part of the liquidity buffer does not constitute a practical obstacle to the liquidation of these securities. If the liquidation entails losses that would breach capital requirements, these securities have no value in practice. In addition, the supervisory authorities must consider for every bank whether additional Pillar 2 requirements are necessary on the basis of that bank's risk profile.

Resolution is an important safety net for failing banks

The problems at US and Swiss banks and interventions by the authorities have placed a renewed focus on the framework for crisis management and resolution. Through strong intervention, the US authorities have been able to limit the negative consequences of failing banks. In the case of both SVB and SBNY, resolution instruments⁶ have been deployed to protect depositors and maintain financial stability. The US authorities chose the option of not having to use the cheapest measure for the deposit guarantee fund⁷, because they saw risks to financial stability⁸.

6 In the United States, SVB and SBNY were placed in a "bridge institution" (a resolution instrument) with the aim of selling all or part of the banks at a later stage while continuing to provide services in the meantime. Part of the Silicon Valley bridge institution was sold to First-Citizens Bank & Trust on 26 March 2023.

7 The costs of bank resolutions are borne in the first place by the American deposit insurance fund (DIF). The ultimate costs of this fund are passed on to the American banking sector.

8 In the United States it is possible to do this under the Systemic Risk Exception, whereby the requirement to take the cheapest option is disappplied if specific risks to financial stability are identified.

The UK subsidiary of SVB that had been taken into resolution was sold to HSBC. In Switzerland, Credit Suisse got into severe difficulties due to liquidity problems. The intervention and support of the Swiss authorities, in the form of government guarantees for Credit Suisse assets and general liquidity support, led to the full write-down of the AT1 capital⁹, after which Credit Suisse was acquired by UBS. It was decided not to use a resolution instrument in this case.

Lessons can be drawn from the problem cases in the United States and Switzerland with regard to preparation for the use of resolution. The initial observations show that resolution offers substantial added value in the winding up of failing banks and the protection of financial stability, as evidenced by the use of resolution at SVB and SBNY. The Credit Suisse case also shows the need to consider how resolution can be most valuable under a range of circumstances. If the initially preferred strategy is no longer applicable due to changing circumstances, such as market conditions or the cause of a bank's problems, it is important to be flexible and prepared for an alternative route. This will increase feasibility and strengthen confidence in resolution. For example, the use of the bail-in instrument can help restore confidence among savers and investors, but it cannot create any additional liquidity in the event of a liquidity crisis.

We have confidence in the European resolution framework, which contributes to an effective safety net for failing banks.

Our resolution task is aimed at maintaining banks' critical functions for society, ensuring financial stability and minimising the use of taxpayer money. We believe the use of resolution instruments in a failing global systemically important bank (or [G-SIB](#)) can be of great value when coupled with an operational resolution plan and the right strategy. This is also laid down in European legislation. Resolution constitutes the second pillar of the banking union in the form of the Single Resolution Mechanism. The approach ultimately adopted may be influenced by market conditions and other circumstances. We will continue to push for further operational readiness and improved resolvability of banks in the years ahead.

Resolution creates clarity on the timing and sequence of investors' losses. In the case of Credit Suisse, the authorities chose to write off AT1 capital in full, even though not all of the share capital had been written off first. No resolution tools were deployed for Credit Suisse, and the write-down of AT1 capital took place in the previous supervisory phase¹⁰. As is the case throughout the banking union, we will adhere to the resolution creditor hierarchy whereby share capital is written off first, before AT1 capital. The SRB, ECB and EBA have also issued a statement confirming this.

The recent problem cases in the banking sector point to the need for an international examination of the crisis management framework. Problems in the banking sector are not confined to the past and authorities must have sufficient options to deal with failing banks in a controlled manner. At the global level, the lessons of the recent examples of bank failures for international resolution standards (such as the Key Attributes of the Financial Stability Board) are currently being evaluated. At the European level, the current review of the crisis management and deposit insurance (CMDI) framework by the European Commission (EC) increases the authorities' scope to intervene. The EC proposes to extend the scope of resolution to more medium-sized and small banks, to make more funding available for resolution and to further restrict the potential use of state aid.

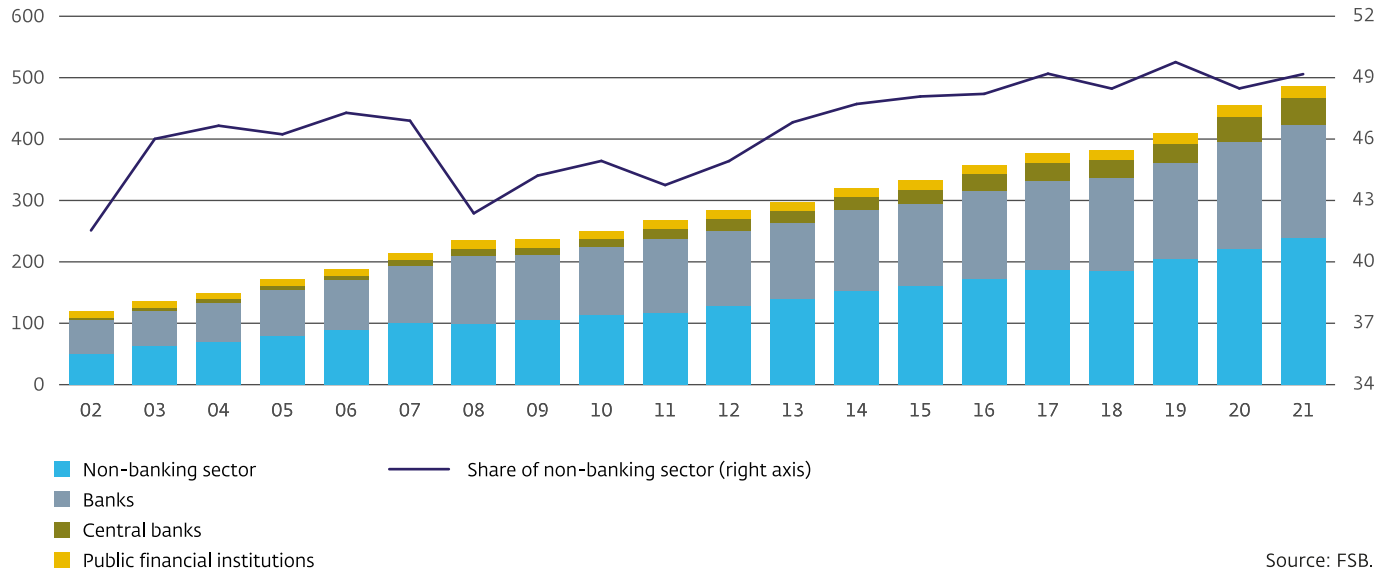
We see the direction and objectives of the CMDI proposal as positive, but we are also critical of a number of aspects of the European Commission's approach. We support the aim of harmonising the approach to resolution, which can increase confidence in the resolution framework and the banking union. We also welcome the fact that the proposal seeks to remove obstacles to the completion of the banking union, such as tightening the rules on state aid. At the same time, we are critical of some parts of the CMDI proposal. For example, extending resolution to small banks would entail higher costs for the sector,

⁹ AT1, or "additional Tier 1" capital is capital that is designed to be converted into shares or written off if a bank gets into difficulty. The contractual provisions for the AT1 instruments provide specific possibilities in this regard.

¹⁰ Resolution will be used if no solution can be found in the supervision phase, an institution fails or is likely to fail in a short period of time and if resolution of the institution is in the "public interest".

Figure 17 Growing role of non-banking sector

Global assets in USD trillions, percentages



Source: FSB.

partly due to requirements for bail-inable buffers (MREL) and resolution planning. This raises questions about proportionality, because the increase in these expenses is not strictly necessary. The alternative of bankruptcy with a payout from the deposit guarantee scheme (DGS) is a realistic option. We also consider

that the proposed modification of the creditor hierarchy to enable DGS support for banks in resolution¹¹ is disproportionate. It would increase the risks to the DGS and could lower the rating of senior unsecured bonds, resulting in rising interest rates on this type of funding.

Vulnerabilities in the non-banking sector must be monitored

Although the recent turmoil has mainly manifested itself in the banking sector, vulnerabilities in the non-banking sector continue to require attention. Non-bank financial intermediation (NBFi) plays an increasingly important role in the financial system (Figure 17). NBFi is a common collective term for non-bank financial institutions and includes, for example, insurers and pension funds, but also investment funds, other finance companies, securities and derivatives traders and securitisation vehicles. NBFi now makes up more than 49% of the total global financial system.

A further tightening of financial conditions may expose structural vulnerabilities in the NBFi sector. These institutions are also sensitive to changes in interest rates and a deterioration of the economic outlook. Vulnerabilities within NBFi that could pose risks to financial stability arise mainly from i. liquidity mismatches, ii. interconnectedness, and iii. leverage and margin calls (see Box 4 NBFi vulnerabilities can affect financial stability). These vulnerabilities may resurface as interest rates rise and liquidity in the system rapidly diminishes.

¹¹ In resolution, a DGS may only contribute to the transfer of (all or parts of) a bank if the costs are lower than those of a DGS payout. The modification of the creditor hierarchy would make a DGS payout more expensive for a DGS and could enable a bigger contribution in resolution.

Box 4 NBFIs vulnerabilities may affect financial stability

One of the main vulnerabilities in the non-bank sector is the liquidity mismatch, which is particularly prevalent in many open-ended funds. A liquidity mismatch occurs when the liquidity profile of the assets in which a fund invests does not match the speed at which investors can withdraw money from the fund. A shock to financial markets, for example due to an unexpected sharp rise in interest rates, can trigger an outflow from open-ended funds. This outflow may put pressure on funds that have a liquidity mismatch. The outflow may be exacerbated by the first-mover advantage of investors who are able to withdraw faster than other investors. This can lead to fire sales (forced asset sales) and thus contribute to a downward price spiral. Research by the [FSB](#) shows that the structural liquidity mismatch of open-ended funds remains high. In the Netherlands, 69% of alternative investment funds (AIF) have an open-ended structure (weighted on the basis of assets under management).

A second vulnerability arises from interconnectedness.

Contagion can occur through *direct* connections, for example when a bank has a stake in an NBFIs or enters into a transaction with an NBFIs. It can also occur through *indirect* links, for example when different financial institutions have common exposures to the same assets and these show strong price swings due to forced sales. Recent [research](#) by the New York Fed shows that the risks to banks from their indirect exposure to NBFIs can be significant during volatile periods. For example, during the market stress in September 2022, several financial institutions with exposures to UK bonds experienced the effects

of the price spiral following fire sales by funds. Banks can also be indirectly exposed to NBFIs due to the growing presence of NBFIs in, for example, repo markets. An NBFIs (other than a CCP) is the counterparty in 30% of banks' repo transactions ([ESRB](#), 2023).

Finally, the use of leverage and the associated margin calls also represent a vulnerability within NBFIs. Leverage exists when an investor builds up an exposure that exceeds its own investment. This can be done by means of loans or derivatives. The increased exposure resulting from the use of leverage amplifies the impact of volatility and increases margin calls on derivative or repo portfolios. Because leverage users often need rapid access to liquidity to meet these calls, increased volatility can lead to forced sales or reductions in positions. Particularly when liquidity is scarce, this need for liquidity can result in fire sales and falls in prices of the assets concerned. The risks of using leverage through both loans and derivatives also became very visible during the period of stress in the UK government bond (gilts) market in September 2022. The interest rate spike caused the value of these gilts to fall, after which high margin calls triggered acute liquidity problems for liability-driven investment (LDI) funds, leading to a vicious circle in which funds had to sell their government securities and the Bank of England felt compelled to intervene. According to research by [ESMA](#), at the end of 2021 around 500 funds were offering LDI strategies, with a total net asset value (NAV) of €250 billion and a gross leverage of approximately 370% of the NAV, through both interest rate derivatives and repos. The vast majority – around 85% of these funds – were held by UK pension funds.

An example that clearly illustrates the vulnerabilities in NBFIs is the commercial real estate market. In the euro area, funds that invest primarily in real estate have experienced strong growth over the past decade. According to research by the [ECB](#) the net asset value (NAV) of these funds more than tripled between 2012 and 2022, to €1,040 billion, representing 40% of the total value of the commercial real estate market in the euro area. In addition, open-ended funds account for 80% of the total NAV of all real estate funds, while real estate assets are relatively illiquid. Adequate use of liquidity management tools is then necessary to prevent these funds from being vulnerable to liquidity risks. After years of growth, rising interest rates and increased macroeconomic uncertainty are putting pressure on the commercial real estate market (see also '[Commercial real estate is under pressure](#)'). If these funds experience large-scale withdrawals, this could potentially trigger forced asset sales, which could in turn exacerbate downward price pressure in the commercial real estate market. Furthermore, price corrections in one country can spill over to other countries through cross-border investments by real estate funds.

The vulnerabilities within NBFIs can reinforce each other during stress and result in a disorderly correction. Rapidly rising liquidity needs, for example to facilitate withdrawals or meet margin calls, can lead to forced sales and falling asset prices. This may lead to renewed selling pressure and rising margin calls. Several components of these self-reinforcing effects became

visible during the dash for cash at the start of the coronavirus crisis and the stress surrounding the UK bond market in the autumn of 2022. NBFIs that use leverage or are exposed to increased credit risk are the most vulnerable to the consequences of a further tightening of financial conditions. Furthermore, funds are vulnerable when they have exposures to [private markets](#), where a downward price correction has become more likely after earlier falls in stock markets.

Recent stress episodes underline the need for mitigating measures. We endorse the international call of the [ESRB](#) and the [FSB](#) to reduce liquidity mismatches in funds and ensure that both funds and authorities provide liquidity management tools (LMTs). Risks can also be addressed through wider use of existing policy instruments. These can ensure, for example, that the costs of requested withdrawals are borne by the exiting investor, thus limiting the first-mover advantage. We also support improved liquidity management and the maintenance of appropriate liquidity buffers by users of leverage so that they are better prepared for margin calls. In addition, we monitor the use of leverage by funds every year. It follows that there are currently no funds whose use of leverage entails systemic risks that can only be addressed by setting a leverage limit. Finally, the possibility of supplementary macroprudential policy for funds is being examined at international level, such as the targeted imposition of liquidity requirements, possibly combined with the use of [liquidity buckets](#). This establishes the liquidity profile of a fund's assets and sets

specific, risk-based minimum requirements for liquidity management.

It is important to improve the availability and quality of data in order to allow effective monitoring and address the vulnerabilities within NBFIs. In the case of investment funds, this is largely being addressed through the introduction of a harmonised reporting obligation in the revised Alternative Investment Fund Managers Directive (AIFM directive) and the Undertakings for Collective Investment in Transferable Securities (UCITS) directive. For the other parts of the NBFIs sector, however, there is still too little data available to properly monitor and analyse risks.

Liquidity risks due to pension funds' margin calls

Pension funds incur liquidity risks through their derivatives portfolios. Pension funds mainly use derivatives to hedge interest rate and currency risks. Counterparties with which these contracts are concluded require collateral in the form of margins, posing a liquidity risk for pension funds. The total interest rate sensitivity of Dutch pension funds' derivatives portfolios is estimated at €600 million per basis point and the total currency sensitivity at €26 million per basis point change in the exchange rate between a foreign currency and the euro. Changes in interest rates and exchange rates can therefore trigger substantial margin calls. Although pension funds have various sources of liquidity to meet margin calls, these obligations can quickly increase in the event of a rapid rise in interest rates, and pension funds run the risk of

being unable to attract sufficient liquidity in a short period of time. In addition to primary liquidity, such as cash, which is available in all circumstances, in the event of rapid interest rate rises pension funds also depend on secondary liquidity, which is less certain and depends on market conditions. For example, pension funds can raise short-term cash in the repo market in exchange for high-quality collateral. They thus depend on liquidity providers in the repo market, such as banks. Although Dutch pension funds have a limited share of repo markets, individual transactions by Dutch pension funds in repo markets can potentially be very large due to the sheer size of the Dutch pension sector. This may mean that pension funds experience problems in attracting sufficient cash when liquidity in the repo market decreases.

The turmoil on the UK financial markets in the autumn of 2022 shows that pension funds can run into problems if interest rates rise quickly. Although Dutch pension funds also have large derivatives portfolios, they are less likely to encounter a situation like that seen in the United Kingdom. Dutch pension funds hedge less interest rate risk with derivatives than UK pension funds and nor are they dependent on a national interest rate. UK pension funds' bond portfolios mainly consist of UK bonds, so price impacts may occur sooner when they are sold, further amplifying the stress. Dutch pension funds also have a better liquidity position. Finally, a large part of Dutch the pension funds' derivatives portfolio is invested through individual segregated accounts, rather than through bundled LDI (liability-driven investment) funds. This makes it easier to raise capital in times of stress.

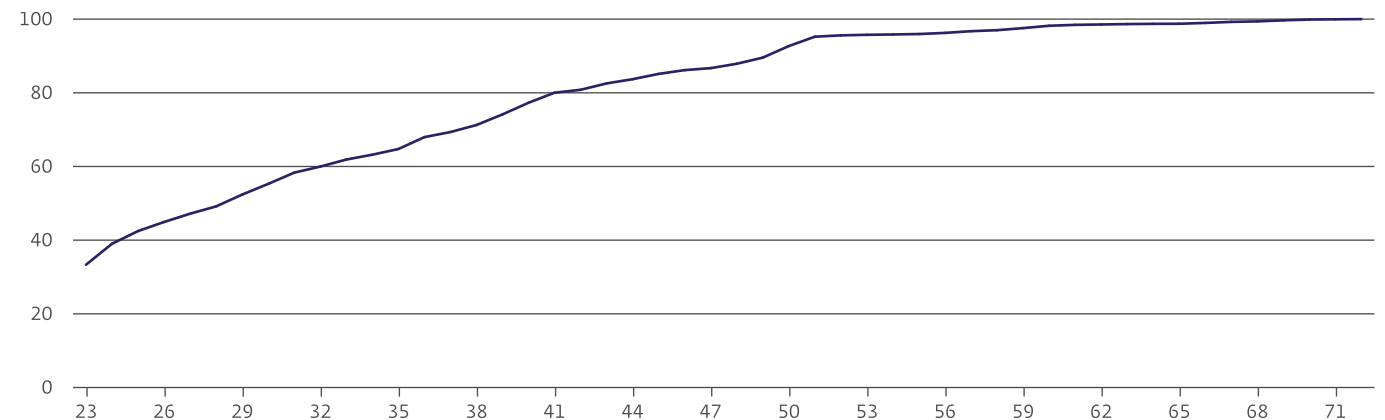
The liquidity risks for pension funds are expected to increase in the years ahead. The exemption from the central clearing obligation expires in June this year. This requires pension funds to clear new transactions in interest rate derivatives centrally through central counterparties (CCPs) rather than bilaterally. CCPs have an important function. A CCP positions itself between contracting parties in order to mitigate their counterparty risk. This makes the market more transparent and reduces the outstanding positions between the parties. However, central clearing also impacts pension funds' liquidity management, because stricter collateral requirements apply. First, margin calls usually have to be met in cash, whereas in bilateral contracts it is often also possible to provide the collateral in the form of investments (such as high-quality government securities) in stress situations. Second, in addition to margin calls based on end-of-day positions, CCPs may make intraday margin calls. Since the clearing obligation only applies to new derivative transactions, the liquidity requirement for pension funds will not increase immediately. The current derivatives held by pension funds generally have long maturities and are largely still cleared bilaterally. As these derivatives mature and are replaced, the share of centrally cleared derivatives in the portfolio will increase. Based on the maturities of the current interest rate swaps, we estimate that the share of centrally cleared interest rate derivatives will grow from 31% to 62% between 2023 and 2033 (Figure 18).

At the request of the Financial Stability Committee, DNB and the AFM are assessing in more detail which liquidity problems may arise in exceptional situations. The Financial Stability Committee discussed liquidity risks in pension funds last [February](#). The FSC believes it is important to follow up on this research and has therefore asked DNB and AFM to conduct a more detailed study of the liquidity risks that would arise in the event of a sharp rise in money market interest rates and the temporary drying up of repo markets and – if necessary – to instigate measures to

control them. To this end, DNB and the AFM are currently conducting risk-based research by means of a survey of large pension funds and the asset managers involved. ■

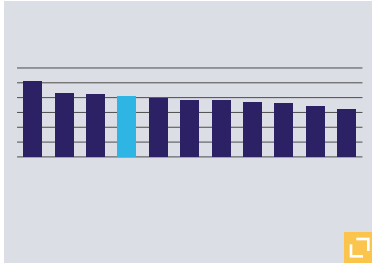
Figure 18 Share of centrally cleared derivatives increases

Estimated percentage share of centrally cleared derivatives in total derivatives portfolio over time (based on notional value)



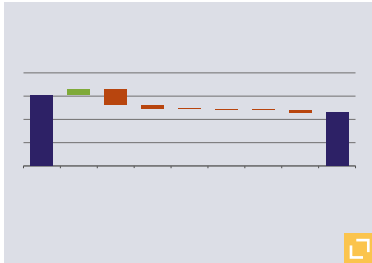
Source: Calculations based on EMIR.

Figures



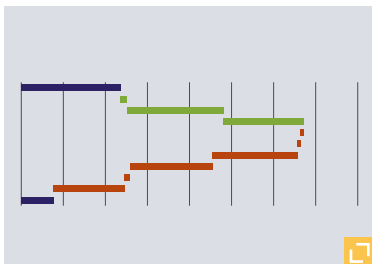
Dutch banks are well capitalised

[See figure 12 →](#)



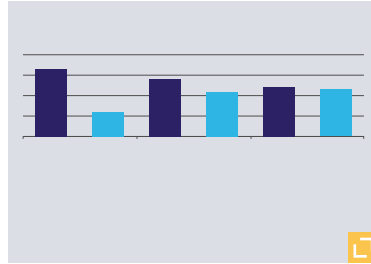
Capital ratios of four Dutch Significant banks remain above minimum required level

[See figure 13 →](#)



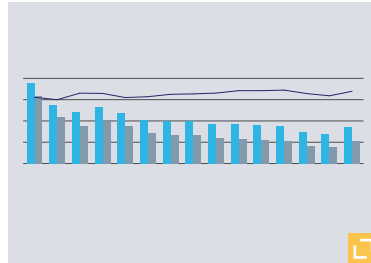
Liquidity positions of four Dutch Significant banks deteriorate sharply in stress scenario, but remain positive

[See figure 14 →](#)



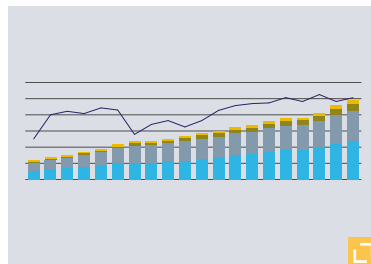
How Dutch banks are reducing their maturity mismatches

[See figure 15 →](#)



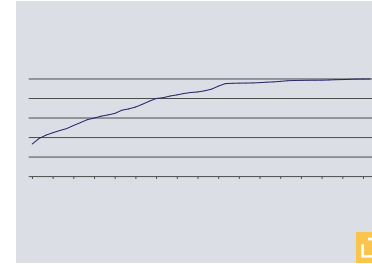
Net interest income holds up well

[See figure 16 →](#)



Growing role of non-banking sector

[See figure 17 →](#)



Share of centrally cleared derivatives increases

[See figure 18 →](#)

Macroprudential policy for banks

A resilient banking sector is of great importance for safeguarding financial stability. Resilient financial institutions with sound capital and liquidity positions are an important line of defence for the stability of the system as a whole. When banks are sufficiently resilient, they can absorb shocks without jeopardising their financial position. The importance of resilience is increasing amid the current uncertainty and financial stability risks.

The buffers are an important part of the capital framework for banks. This framework consists of (risk-weighted) micro- and macroprudential capital requirements. [Box 5 – Capital framework for European banks](#) explains the difference between these types of buffers within this framework. We are adjusting the level of two of the macroprudential buffers: the countercyclical capital buffer (CCyB) and the buffer for other systemically important institutions (O-SIIs).

Box 5 Capital framework for European banks

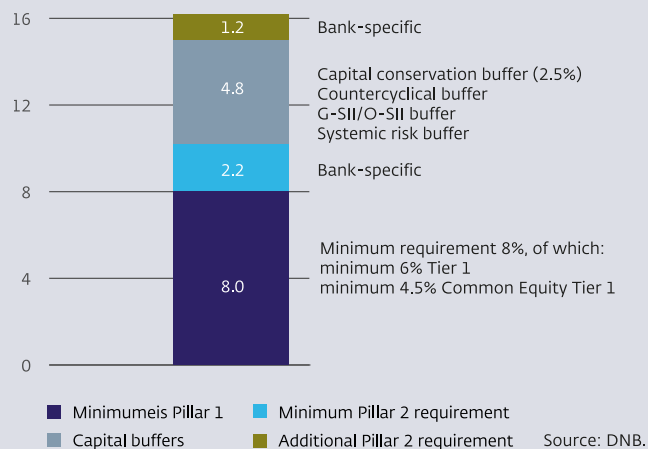
The European capital framework is based on the Basel Accords and comprises (risk-weighted) micro- and macroprudential capital requirements. The microprudential requirements are also referred to as minimum capital requirements and are divided into Pillar 1 and Pillar 2. The Pillar 1 requirement is intended to cover general uncertainties and risks of banking activities and the methodology is the same for all banks. Each exposure is assigned a risk weight, with higher risk weights and hence higher nominal capital requirements applying to riskier assets. The Pillar 2 requirement is determined by the supervisory authority for each bank in order to address institution-specific risks that are insufficiently covered under Pillar 1. In addition to the microprudential requirements there is the macroprudential combined buffer requirement, which ensures that banks have an additional buffer to absorb risks to – or stemming from – the entire system, also referred to as systemic risks. These systemic risks can be both cyclical and structural in nature. If a bank draws on all or part of its combined buffer,

automatic restrictions are placed on dividends and other capital distributions. These capital restrictions prevent capital outflows and encourage banks to maintain their level of capital. Figure 19 provides an overview of the capital requirements of a fictitious Dutch bank.

The macroprudential combined buffer requirement comprises five different buffers, each with its own target and scope. The five buffers are: (i) Capital Conservation Buffer (CCoB): The CCoB is intended to absorb losses in times of stress. (ii) Countercyclical Capital Buffer (CCyB): This bank buffer provides resilience against cyclical risks and can be released when cyclical risks materialise. (iii) and (iv) Globally/ Other Systemically Important Institutions (G-SII/OSII) buffer: The G-SII and O-SII buffers are capital surcharges for global (G-SII) or domestic (O-SII) systemically important banks, because these banks pose an additional risk to the financial system, partly due to their size. (v) Systemic Risk Buffer (SyRB): the SyRB is a domestic buffer that can be activated if the macroprudential authority identifies a residual systemic risk.

Figure 19 The risk-weighted capital requirement

Percentage of risk-weighted assets



DNB set to raise countercyclical capital buffer (CCyB) to 2%

It is important that banks are able to maintain lending to the economy, even in times of crisis, and the CCyB has been added to the capital framework for this purpose. If banks are reluctant across the board to extend credit in times of crisis, this can increase the damage to the real economy – and its impact on the banks. To ensure that banks also fulfil their role as lenders in times

of crisis, the macroprudential authority can reduce the level of the CCyB at any time. Lowering the buffer frees up capital, which banks can use to absorb losses without having to curtail lending to promising projects in order to continue to meet capital requirements. This buffer must be built up in a timely manner and reflect the cyclical risk in order to be able to lower the CCyB in times of crisis.

On the basis of the current assessment of cyclical risk we are raising the CCyB. In line with the CCyB framework the current risk environment provides grounds for this increase. The financial stability risks remain high, but at the same time there is not yet any clear sign of a turnaround in the cycle. For now, economic activity remains relatively buoyant and producer confidence, for example, is still above the long-term average. The banks' financial position and profitability are also robust, partly due to rising interest rates (see also "Financial institutions"). Although there are no signs of excessive credit growth, which would signal a reversal of the financial cycle in the near term, some other indicators already point to increased risk. In the low-for-long years many investors increased their risk appetite as part of a search for yield. Now that interest rates are rising, this could lead to wider losses that also impact other parts of the financial sector. With higher interest rates, prices in both the commercial and residential real estate markets are also falling and concerns surrounding the sustainability of business and government debt are growing.

The further build-up of the CCyB should address the current uncertainty and the associated risks.

DNB set to raise the CCyB from 1% to 2%. This new buffer requirement will come into force on 31 May 2024. As described in the [CCyB framework](#), this will take it to the target level in a standard risk environment. Dutch banks are well able to meet this higher CCyB requirement. They generally maintain buffers comfortably above the regulatory requirements. If financial stability risks materialise during the build-up period, we will reconsider the increase in accordance with the CCyB framework.

DNB adjusts O-SII buffers

We are changing the method used to determine the buffers for other systemically important institutions (O-SIIs). O-SII buffers have been in place in the Netherlands since 2016. These buffers address the additional risk that the most systemically important banks pose to the Dutch economy. When a large bank gets into trouble, it causes more damage to the domestic economy than the failure of a smaller bank. We determine the systemic importance of Dutch banks on the basis of guidelines issued by the European Banking Authority (EBA). These guidelines identify four dimensions of systemic importance (size, interconnectedness, complexity and substitutability), which are used to calculate a relative systemic importance score. For each bank, this score represents an estimate of the potential domestic impact if it gets

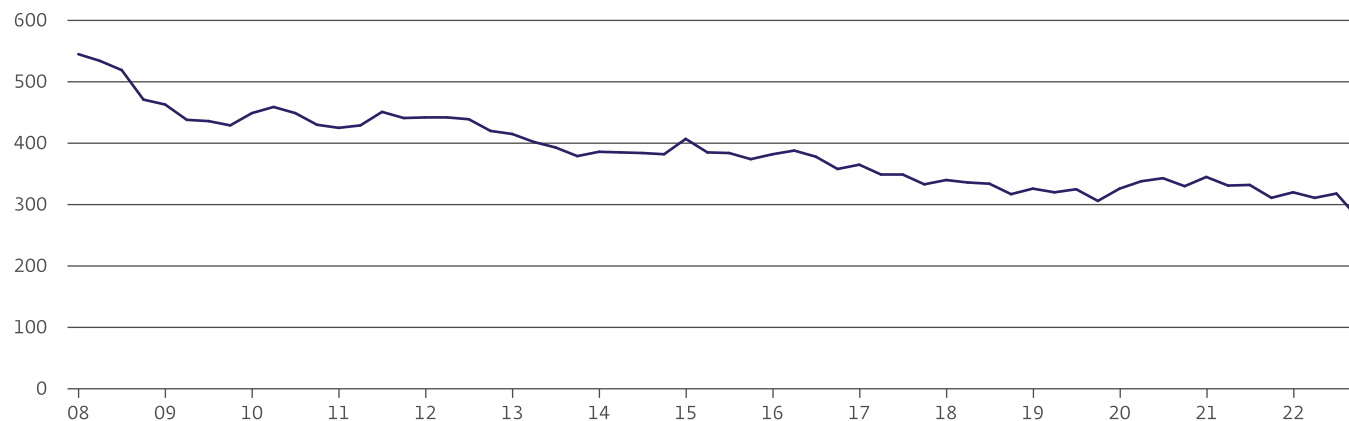
into difficulty. An appropriate buffer level is determined based on these scores.

Macrofinancial developments seen in recent years provide grounds for a change in the O-SII buffers. When they were being phased in, the buffers were based partly on the relatively large size and concentration of the Dutch banking sector. The Dutch banking sector at the time represented around 400% of GDP. Although still relatively large and concentrated from a European perspective, the size of the banking sector fell to 280% of GDP at the end of 2022 (Figure 20). The reduced size means that the systemic importance has decreased and that the possible failure of a large Dutch bank would have less impact on the domestic economy than before. Second, progress has been made in the field of regulation and European integration since 2016, including the development of the European banking union. This means problems in the banking sector can be tackled more effectively – and more consistently – across Europe. The new, lower O-SII buffers better reflect the reduced structural systemic risk that large banks pose to the domestic economy.

The recalibration of the O-SII buffers was based on insights gained at both national and European level in recent years. The new method is known in the academic literature as the Equal Expected Impact (EEI) method, with the size of the O-SII buffer reducing the likely impact of the failure of a large bank to that of a smaller bank. The buffers are thus a better – and more empirically substantiated – reflection of the additional risk that larger banks

Figure 20 Relative size of Dutch banking sector lower

Balance sheet total Dutch banking sector as a percentage of GDP



pose to the domestic economy compared to smaller banks. Other European jurisdictions, including Germany, already use the EEI method.

The modified buffer requirements will also come into force on 31 May 2024. The O-SII buffers are being revised with effect from 31 May 2023. As in the case of the CCyB, the new O-SII buffers have a phase-in period of one year before the new requirements come into force. Table 1 shows the old and new levels of the O-SII buffer requirements.

Overall impact on capital requirements differs depending on the bank

The raising of the CCyB and the lowering of the O-SII buffers impact each bank differently and lead to a slight increase in total capital requirements at sector level. The CCyB and O-SII buffers differ in terms of their purpose and function (see [Box 5 – Capital framework for European banks](#)) and in i) the exposures to which they apply and ii) the banks to which they apply. The Dutch CCyB requirement applies to all relevant exposures in the Netherlands. Both Dutch and foreign banks must comply with this requirement. In addition, some Dutch banks – depending on the location of their foreign exposures – must also comply with the

Table 1 New buffer requirements come into force on 31 May 2024

Banks	Current buffer requirements		New buffer requirements	
	O-SIII	CCyB	O-SIII	CCyB
ING	2.50%		2.00%	
Rabobank	2.00%		1.75%	
ABN AMRO	1.50%		1.25%	
BNG Bank	1.00%	1.00%	0.25%	2.00%
Volksbank	1.00%		0.25%	
Other Dutch banks	0.00%		0.00%	

CCyB requirement of foreign authorities. France, for example, where some Dutch banks also operate, announced an increase in its CCyB in January 2023. The increase in the CCyB in the Netherlands therefore leads to an increase in capital requirements for all banks operating in the Netherlands, but the precise effect differs depending on the bank and depends to some extent on its geographical spread. For the Dutch banking sector as a whole, the increase in the CCyB will lead to higher capital requirements of €3.4 billion. The O-SII buffer, on the other hand, is an additional capital surcharge for the largest banks and applies to all exposures. The reduction in this buffer therefore applies only to the largest banks in the Netherlands. For the banking sector as a whole, the change in the O-SII buffers will reduce capital

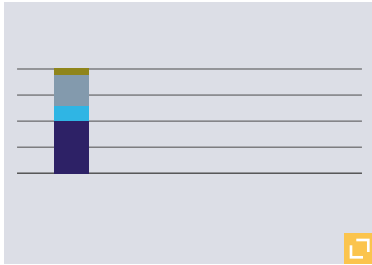
requirements by €2.8 billion. On balance, therefore, the changed buffers therefore result in a slight increase in the total capital requirements. Table 1 shows the old and new levels of the CCyB and O-SII buffer requirements. The other, unchanged requirements are not shown. The buffer adjustments shown are not directly comparable, nor can they simply be added up, because of the aforementioned differences in the base and application.

Floor for risk-weighted assets for mortgage loans remains in force

The floor for the risk weighting of residential mortgage loans remains in force. In addition to the aforementioned macroprudential buffer requirements, the previously introduced

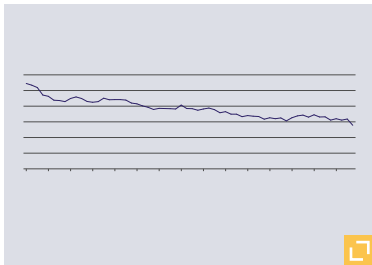
floor for the risk weighting of Dutch residential mortgage loans also forms part of the macroprudential toolset for banks. This lower limit applies to banks that use an internal risk model and was introduced because these models do not take sufficient account of the systemic risk in the housing market. The strong rises in house prices up to July 2022 result in decreasing risk weights through lower loan-to-value ratios, reducing the amount of capital banks need to hold for their mortgage portfolios. As a result of the measure, banks are better able to absorb the impact of a price correction in the housing market and any economic consequences this may have. The measure will be in force in any event until 1 December 2024. We will continue to monitor developments in the housing market closely and will reconsider the measure in the event of a material change in risks. ■

Figures



The risk-weighted capital requirement

[See figure 19 →](#)



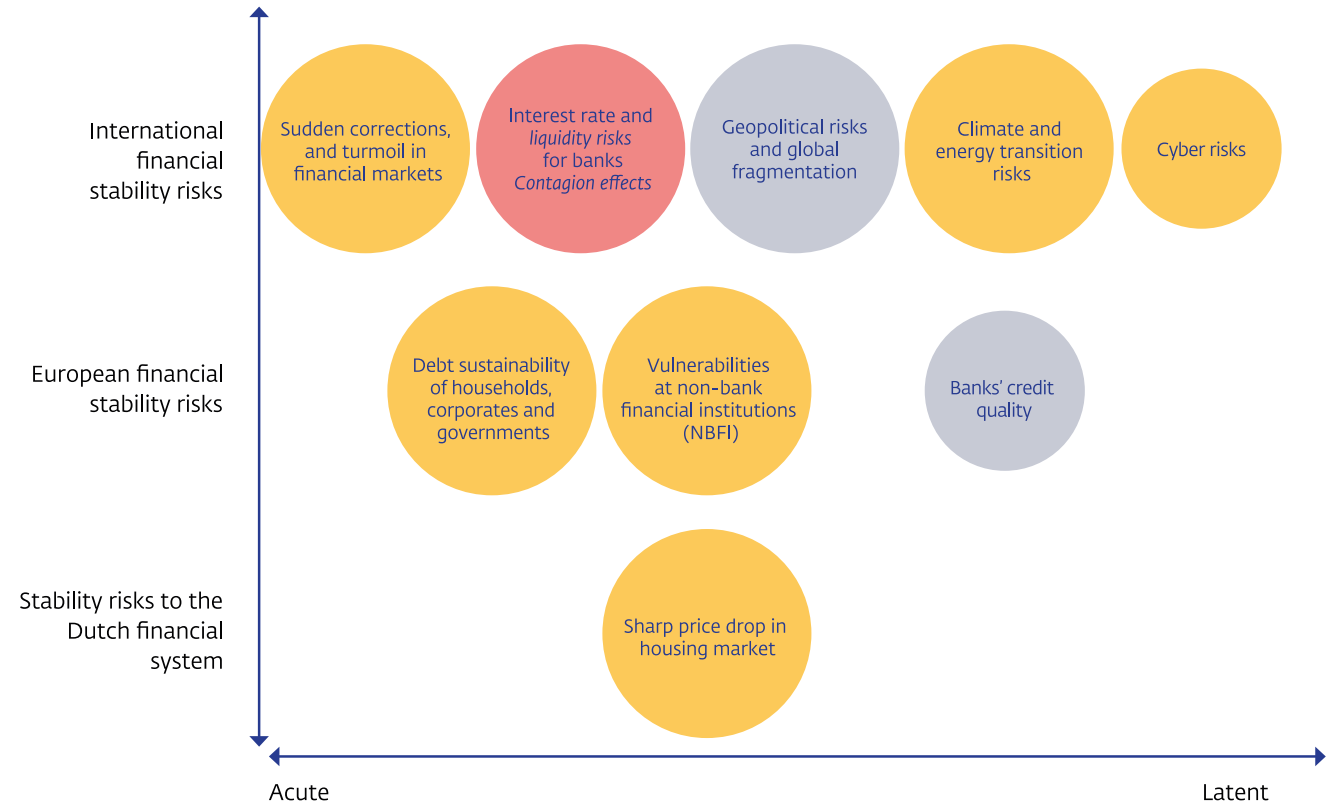
Relative size of Dutch banking sector lower

[See figure 20 →](#)

Risk map

Reader's guide

The figures presented in this Financial Stability Report are also available in a data file on dnb.nl, as is an overview of macroprudential indicators. The cut-off date for the figures in this FSR is 1 May 2023.



Explanation

The risk map presents a schematic overview of the main risks to financial stability. Not all risks are addressed in this Financial Stability Report. These risks have been or will be covered in previous and future editions of the Financial Stability Report.

The size of the circles reflects the magnitude of risk. The colour of the circles reflects whether, viewed over the medium term, a risk sharply increases (red), moderately increases (yellow), decreases (green) or remains unchanged (grey) compared to the previous edition of the Financial Stability Report.

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