

Accountability report

Summary	12		
1 Monetary policy	23	6 Contribution to financial system stability	102
1.1 Mandate and monetary policy strategy	23	6.1 Background	102
1.2 International economic developments	27	6.2 Monitoring the financial system	103
1.3 Economic developments in Switzerland	33	6.3 Measures relating to mortgage and real estate markets	106
1.4 Monetary policy in 2021	40	6.4 Oversight of FMI's	108
		6.5 Financial sector cybersecurity	112
2 Implementation of monetary policy	54	7 Participation in international monetary cooperation	113
2.1 Background and overview	54	7.1 Background	113
2.2 Developments in the money and foreign exchange markets	55	7.2 Multilateral cooperation	113
2.3 Use of monetary policy instruments	60	7.3 Bilateral cooperation	126
2.4 Minimum reserves	66		
2.5 Liquidity in foreign currencies	67	8 Banking services for the Confederation	129
2.6 Emergency liquidity assistance	68		
		9 Statistics	130
3 Ensuring the supply and distribution of cash	69	9.1 Background	130
3.1 Background	69	9.2 Products	131
3.2 Cashier's offices, agencies and cash deposit facilities	69	9.3 Projects	132
3.3 Banknotes	70	9.4 Collaboration	133
3.4 Coins	73		
4 Facilitating and securing cashless payments	76		
4.1 Background	76		
4.2 The SIC system in 2021	77		
5 Asset management	84		
5.1 Background	84		
5.2 Investment and risk control process	86		
5.3 Changes in and breakdown of assets	88		
5.4 Balance sheet risk	96		
5.5 Investment performance	99		

On 22 March 2022, the Governing Board of the Swiss National Bank submitted its accountability report for 2021 to the Federal Assembly in accordance with art. 7 para. 2 of the National Bank Act (NBA). The report provides information about how the SNB has fulfilled its mandate pursuant to art. 5 NBA – in particular as regards its conduct of monetary policy and its contribution to the stability of the financial system. It is submitted to the Federal Council and the General Meeting of Shareholders for information purposes.

SUMMARY

Monetary policy

The SNB pursues a monetary policy serving the interests of the country as a whole. It must ensure price stability, while taking due account of economic developments. Its monetary policy strategy consists of the following elements: a definition of price stability, a medium-term conditional inflation forecast, and the SNB policy rate. The SNB seeks to keep the secured short-term money market rates close to the SNB policy rate.

In 2021, the global economy recovered from the sharp recession the year before. That said, the coronavirus pandemic continued in its second year to shape economic conditions worldwide. Against the fraught backdrop of the pandemic, extensive containment measures remained in place in numerous countries into spring. However, these did not weigh as heavily on economic activity as when coronavirus first began to spread globally in spring 2020. On the one hand, the measures were less severe overall, and on the other companies and households were also better able to deal with the situation. As the summer approached, the pandemic situation eased in many areas. Added to this, significant progress was made on the vaccination front. Many countries were able to relax the restrictions again, which contributed to strong global economic growth in the second and third quarters. From the autumn onwards, infection numbers rose again rapidly in some countries, requiring stricter containment measures to be reintroduced in certain cases. Furthermore, supply bottlenecks built up in various industries in the manufacturing sector as a result of a strong recovery in demand for goods and disruptions in international production chains. Nonetheless, the global economic recovery continued in the fourth quarter, albeit somewhat subdued.

The Swiss economy also recovered from 2020's severe downturn. GDP increased by 3.7%, thereby exceeding the pre-crisis level of 2019 by 1.2% on average over the year. The Swiss economy recovered quickly by international comparison. That said, GDP was still lower than would have been expected without the pandemic. As the containment measures were eased, GDP increased strongly from the second quarter onwards. There was a significant rebound in the services sector in particular, which had been hit hard by the pandemic. In addition, manufacturing profited from stronger foreign demand. There was also some degree of pent-up demand, which contributed to the dynamic development. GDP growth slowed in the fourth quarter. Supply bottlenecks posed a challenge for Swiss companies, too. However, they had only a limited impact on the economic recovery. The situation in the labour market improved over the course of the year, with marked declines in both unemployment and the use of short-time working.

Annual inflation as measured by the Swiss consumer price index (CPI) rose steadily, from -0.4% in the first quarter to 1.4% in the fourth. The average for the year was thus 0.6% (2020: -0.7%). This increase was mainly attributable to the marked rise in prices for oil products and for certain imported goods affected by global supply bottlenecks. The conditional inflation forecasts published quarterly by the SNB indicated that inflation would remain in the range it equates with price stability (0% to 2.0%) in the medium term. At the end of the year, inflation expectations were also within the range consistent with price stability for all the relevant horizons.

The SNB maintained its expansionary monetary policy and thereby supported the recovery of the Swiss economy. It left the SNB policy rate and interest on sight deposits at the SNB at -0.75% and intervened in the foreign exchange market as necessary. This monetary policy was necessary to ensure appropriate monetary conditions. The Swiss franc remained highly valued and was subject to upward pressure at times. In view of higher inflation abroad and rising inflation in Switzerland, the SNB allowed the Swiss franc to appreciate by a certain amount. The appreciation of the Swiss franc counteracted a rise in prices domestically, as it made imports cheaper, and so contributed to price stability.

The SNB has been working intensively on the topic of climate change for some time now. Within the framework of its statutory mandate, it takes into account in its activities possible consequences of climate change for the economy and thus for monetary policy, for financial stability and for the management of currency reserves. In this context, the SNB cooperates with other central banks, authorities and universities, as well as international organisations and forums.

Digitalisation in the financial sector and innovations in the area of money and currencies are of considerable interest to the SNB. These topics include central bank digital currency (CBDC). The SNB is closely involved in issues surrounding CBDC, takes part in various proofs of concept, and actively participates in international discussions.

The SNB charges negative interest on sight deposits held by banks and other financial market participants at the SNB which exceed a given exemption threshold. This rate remained at -0.75% in 2021, the same level as the SNB policy rate. The relevant money market rates were close to the SNB policy rate. From September, the most representative money market rate, the rate for secured overnight money (Swiss Average Rate Overnight, SARON), edged upwards slightly to an average level of -0.71% .

The SNB purchased a total value of CHF 21.1 billion in foreign currency over the course of the year in order to counter the upward pressure on the Swiss franc and thus contribute to appropriate monetary conditions.

As a measure to manage the coronavirus crisis, the SNB set up the SNB COVID-19 refinancing facility (CRF) in March 2020 to allow banks to obtain additional liquidity against collateral at the SNB policy rate. As collateral the SNB accepts credit claims in respect of loans guaranteed by the federal government or a canton by means of a loan guarantee or credit default guarantee. After heavy drawdown in 2020, use of the CRF in 2021 declined from CHF 11.2 billion to CHF 9.2 billion due to repayments.

The transition from the Swiss franc Libor (London Interbank Offered Rate) to SARON was successfully completed for the Swiss financial market in 2021. As announced by the Libor administrator, the Intercontinental Exchange Benchmark Administration, the Swiss franc Libor was discontinued at the end of the year. SARON had previously established itself as the central reference interest rate on the Swiss financial market. Existing contracts still based on the Swiss franc Libor were switched to SARON-based products. The SNB participated in the National Working Group on Swiss Franc Reference Rates, which managed the transition from the Swiss franc Libor to SARON.

In 2021, banknotes in circulation averaged CHF 88.3 billion, 4.5% above the 2020 level. The total number of notes in circulation averaged 532.0 million, which was 3.6% higher than in 2020. As in the previous years, this growth was shaped by demand for the larger banknote denominations.

Cash supply and distribution

The SNB recalled the banknotes from the eighth series with effect from 30 April 2021. The banknotes thereby lost their status as legal tender. They can, however, be exchanged at the SNB and the SNB agencies for an unlimited period at their full nominal value.

In June, the SNB published the results of the survey on the use of the different payment methods by households in Switzerland, which it conducted for the second time in 2020. Evaluation of the data shows that cash continues to be used relatively frequently as a payment method. Compared to the first survey in 2017, however, its importance has declined. By contrast, non-cash payment methods, such as the debit card, are being used significantly more often.

In addition, the SNB launched a survey on payment methods of Swiss companies for the first time in summer 2021, the results of which were published in February 2022. The survey findings showed that customer preference plays a key role in determining which payment methods are accepted by companies. Overall, 83% of all companies accept payment against invoice, 68% payment by transfer and 60% payment in cash.

In 2021, a daily average of approximately 3.5 million transactions amounting to CHF 163 billion were settled via the Swiss Interbank Clearing (SIC) payment system. Compared to the previous year, the average number of transactions settled per day rose by 21.7%. This can be explained with the integration of PostFinance's retail payments (customer payments) into the SIC system. Turnover simultaneously declined by 8.4%. This is attributable to a lower level of activity in interbank payment transactions.

Cashless payment transactions

The SNB and SIX Interbank Clearing Ltd continued work in 2021 on the SIC5 project initiated the year before to further develop the SIC system. Among other things, SIC5 allows the settlement of instant payments, i.e. cashless retail payments that are processed around the clock with the amount being made available for use by the final recipient within seconds. The new SIC5 platform is expected to be launched at the end of 2023.

As the commissioning party and system manager of the SIC system, in March 2021 the SNB decided – after consultation with the SIC participants – to make the acceptance of instant payments a compulsory requirement. This was also a concern of the Board of Directors of SIX Interbank Clearing Ltd. This requirement is compulsory for all SIC participants active in retail payment transactions and will initially be introduced for the largest financial institutions in retail payment transactions from mid-2024.

Advances were also made in the project launched together with SIX Group Ltd (SIX) to develop a secure network for the Swiss financial centre (Secure Swiss Finance Network, SSFN). The SSFN communication network went into operation for the SIC system test environments in November 2021. A decision on the connection to the productive environment of the SIC system will be made during 2022. The existing communication link to the SIC system is thus to be gradually replaced by the SSFN. The SSFN helps to further strengthen the cyber resilience of the financial sector.

Furthermore, two proofs of concept were carried out in the area of cashless payment transactions in collaboration with the BIS Innovation Hub Swiss Centre. In Project Helvetia Phase II, the SNB and SIX explored the integration of central bank digital currency for financial institutions (wholesale CBDC, or wCBDC) into the core banking systems of five commercial banks involved in the project and the SNB. The issuance and redemption of wCBDC by the SNB, wCBDC payments between financial institutions both in Switzerland and abroad, as well as the settlement of securities transactions in wCBDC were all successfully tested. Project Jura, which was carried out in conjunction with the Banque de France and a private sector consortium, explored the cross-border settlement of securities and foreign exchange transactions with wCBDC in two currencies. The results showed that the settlement of cross-border transactions can be carried out directly in central bank money.

The SNB's balance sheet total increased further in 2021. At the end of the year, the SNB's assets amounted to CHF 1,057 billion, compared to CHF 999 billion one year earlier. This increase was principally due to valuation gains and investment income as well as inflows from foreign currency purchases. Total currency reserves stood at CHF 1,015 billion at year-end. The majority of these reserves was held in the form of foreign currency investments, the remainder in gold.

The most important risk factor to which the investments are exposed is currency risk, which the SNB cannot hedge for monetary policy reasons. Even minor changes in the Swiss franc exchange rates lead to substantial fluctuations in investment income, which is measured in Swiss francs. However, the SNB does not hedge currency risks as this would generate upward pressure on the Swiss franc and thus counteract the SNB's expansionary monetary policy. In 2021, currency losses due to Swiss franc appreciation were more than offset by returns on investments in the investment currencies. Measured in Swiss francs, the return on currency reserves was 2.7%. Gold declined slightly in value (-0.1%), whereas foreign exchange reserves yielded a positive return (2.9%).

The SNB makes most of its foreign currency investments in government bonds. However, it also invests in shares and corporate bonds in order to take advantage of the positive return contribution of these asset classes and improve the long-term risk/return ratio. When managing securities of private sector issuers, the SNB also takes non-financial aspects into consideration. For instance, owing to its special role vis-à-vis the banking sector, it refrains from investing in shares of systemically important banks worldwide.

The SNB also takes account of Switzerland's fundamental standards and values in its investment policy. Consequently, it does not invest in shares and bonds of companies whose products or production processes grossly violate broadly accepted values. The SNB therefore does not purchase securities issued by companies that seriously violate fundamental human rights, systematically cause severe environmental damage or are involved in the production of internationally condemned weapons. Since December 2020, the SNB has also excluded shares and bonds of companies primarily active in the mining of coal for energy production, as there is a broad consensus in Switzerland in favour of phasing out coal.

The growth in the balance sheet in recent years has resulted in higher loss risk in absolute terms. The SNB aims for a robust balance sheet with sufficient equity capital, to ensure that it can also absorb potentially high losses. Equity capital is composed of the provisions for currency reserves and the distribution reserve. Annual allocations to the provisions for currency reserves are necessary to ensure a solid equity base. In 2021, the allocation amounted to CHF 8.7 billion, after which the provisions totalled just under CHF 96 billion.

In January 2021, the Federal Department of Finance and the Swiss National Bank concluded a new agreement on the SNB's profit distributions to the Confederation and the cantons, covering the period through to 2025. The agreement provides for an annual distribution of up to CHF 6 billion if the conditions specified in the agreement are met.

Financial system stability

Within the context of monitoring the financial system, the SNB analyses developments and risks in the Swiss banking sector. Its assessment is published, in particular, in its annual Financial Stability Report.

The SNB noted in its report published in June 2021 that the two globally active Swiss banks, Credit Suisse Group AG (Credit Suisse) and UBS Group AG (UBS), were well placed to face the challenges presented by the current environment and support the real economy. At the same time, the loss potential of Credit Suisse and UBS under the stress scenarios remained substantial. Furthermore, both banks took significant risks. The capital requirements under the current 'too big to fail' (TBTF) regulations are thus necessary to ensure adequate resilience at the two globally active banks.

As regards the domestically focused banks, the SNB noted that the coronavirus pandemic had had little impact on the profitability of these institutions. Profitability remained stable in the first half of 2021, having even improved slightly in 2020. However, viewed over a longer period, it remained low, and is likely to stay under pressure in the future.

The domestically focused banks' exposure to the mortgage and real estate markets continued to increase. Mortgage volume at these banks and affordability risks both rose again in 2021. At the same time, transaction prices for residential properties rose further. Vulnerabilities on the Swiss mortgage and residential real estate markets have increased since the beginning of the coronavirus crisis.

In light of these higher vulnerabilities, banks' capital adequacy is of great importance. At the end of 2021, the SNB therefore submitted a proposal to the Federal Council requesting that the sectoral countercyclical capital buffer, targeted at mortgage loans financing residential real estate in Switzerland, be reactivated at 2.5%. The Federal Council approved the proposal on 26 January 2022. The new requirements apply from 30 September 2022.

With respect to business continuity management, the SNB also called on the systemically important financial market infrastructures to deal more systematically and comprehensively with extreme but plausible scenarios as well as with the management of associated risks. In particular, the rapidly changing threat situation with regard to cyberattacks must be taken into consideration to a greater degree.

Not only can cyberincidents impact individual financial institutions, they can also jeopardise the functioning of the financial system. While responsibility for protecting themselves against cyber risks lies with the individual financial institutions, the authorities also contribute to the cybersecurity of the financial sector within the scope of their mandates. For instance, the SNB is participating in a project under the direction of the National Cyber Security Centre. The project aims to promote institutionalised cooperation between the private sector and the authorities in strategic and operational cybersecurity matters with a view to further strengthening the financial centre's cyber defences. In the year under review, preparations were made to set up an association for this purpose in 2022. The SNB intends to become a member.

International monetary cooperation

The SNB participates in international monetary cooperation through its involvement in the relevant multilateral institutions and bodies, and its collaboration on a bilateral level with other central banks and authorities. The multilateral institutions and forums include the International Monetary Fund (IMF), the Bank for International Settlements (BIS), the Financial Stability Board (FSB), the G20 Finance Track, the Organisation for Economic Co-operation and Development (OECD), and the Central Banks and Supervisors Network for Greening the Financial System (NGFS).

International monetary cooperation was marked by several key developments in 2021. In order to provide the global economy with additional liquidity and bolster the reserves of member countries, in August the IMF allocated new Special Drawing Rights (SDRs) to member countries equivalent to USD 650 billion. This was the largest SDR allocation in the history of the IMF. The larger allocation of SDRs and the SNB's participation in the voluntary trading arrangements (VTA) increased the SNB's willingness to purchase SDRs against freely usable currencies. The SNB thus helps to support countries with short-term liquidity requirements via this instrument. Furthermore, the SNB worked on the creation of a new Resilience and Sustainability Trust (RST).

At the end of 2021, Switzerland's maximum commitment to the IMF in respect of financing the latter's regular lending totalled CHF 25.3 billion; the effective outstanding amount was CHF 2.0 billion. The SNB finances these commitments, with loans granted under the bilateral borrowing agreement being guaranteed by the Confederation.

During its Article IV consultation in spring 2021, the IMF recognised Switzerland's early and appropriate response to the outbreak of the pandemic. Considering the ongoing major uncertainties caused by the pandemic, the IMF recommended the SNB continue its expansionary monetary policy including negative interest and, if necessary, foreign exchange market interventions. The IMF concluded by recommending close monitoring of the risks in the financial sector, especially with respect to the real estate market.

Like the IMF, in its country report on Switzerland the OECD also found that the pandemic-related monetary and fiscal policy measures were appropriate. It recommended that monetary policy remain expansionary until the economic recovery was firmly underway.

Together with the BIS and six other central banks, the SNB continued to participate in the working group on central bank digital currency (CBDC). The working group published several reports in September 2021 on key aspects of the design and implementation of CBDC. Furthermore, in 2021 employees from the BIS and the SNB worked on four different projects at the BIS Innovation Hub Swiss Centre. In addition to Project Helvetia Phase II and Project Jura, mentioned above, they also took part in Project Rio and Project Titus. Project Rio's concept for a platform to monitor fast-paced markets, such as those for foreign exchange, was further developed and can now be used by central banks. The platform analyses continuously streaming market data from key foreign exchange trading venues in real time. For Project Titus, the BIS Innovation Hub built its own platform to experiment with distributed ledger technology (DLT) applications across its various Centres. A payment system is simulated on this platform to test a range of use cases.

In 2021, the SNB continued to engage in dialogue in the NGFS so as to better gauge the potential impact of climate risks on macroeconomic developments and financial stability. The SNB took part in NGFS working groups, focusing among other things on scenario analysis of climate risks and on climate-related risk management.

As part of its bilateral monetary cooperation, the SNB collaborates with other central banks, cultivates contacts with foreign authorities and provides technical assistance. The main recipients of technical assistance are the central banks of countries in Central Asia and the Caucasus, i.e. the members of the Swiss constituency at the IMF.

In December 2020, in its regularly published report on the foreign exchange policies of major trading partners of the United States, the US Treasury had designated Switzerland a currency manipulator. In its April 2021 and October 2021 reports, the US Treasury no longer classified Switzerland as a currency manipulator. The Federal Council and the SNB rejected the accusation of currency manipulation. The Swiss authorities conducted discussions with the US Treasury to explain Switzerland's special situation.

Banking services for the Confederation

In 2021, the Confederation's short-term financing needs remained virtually unchanged year-on-year. On behalf of and for the account of the Confederation, the SNB issued, by auction, money market debt register claims amounting to CHF 39.1 billion and Confederation bonds amounting to CHF 7.2 billion.

Statistics

The SNB compiles statistical data on banks and financial markets, the balance of payments, the international investment position, direct investment and the Swiss financial accounts. To this end, it collaborates with the relevant federal government bodies, with FINMA, and also with the authorities of other countries and international organisations.

The data portal was further expanded in 2021. Additional data on banks have been available since mid-June. In particular, the SNB now also publishes results from consolidated financial statements. Selected indicators on the current granting of mortgage loans by banks in Switzerland have been available since mid-year.

The 'Breakdown of selected balance sheet items, by interest rate' survey of reporting banks was phased in during 2021. This new survey was prompted by the SNB's requirement for data in connection with the negative interest rate regime. Furthermore, SIX and PostFinance started supplying detailed data to the SNB on cash transactions at ATMs.

The revised survey on customer payment transactions was conducted for the first time in January 2022. The revision came in response to the increasing digitalisation of payment transactions and changes in the public's payment habits. This survey is now conducted monthly instead of quarterly.

1.1 MANDATE AND MONETARY POLICY STRATEGY

Article 99 of the Federal Constitution entrusts the Swiss National Bank, as an independent central bank, with the conduct of monetary policy in the interests of the country as a whole. The mandate is explained in detail in the National Bank Act (art. 5 para. 1 NBA), which requires the SNB to ensure price stability and, in so doing, to take due account of economic developments.

Constitutional and legal mandate

Price stability is an important prerequisite for growth and prosperity. It means that money retains its value over time. By seeking to keep prices stable, the SNB creates an environment in which households and companies can make plans on a reliable basis. Inflation (a sustained increase in the price level) and deflation (a sustained decrease in the price level) both impair economic development. They hinder the role of prices in allocating labour and capital to their most efficient use, and result in a redistribution of income and wealth.

Significance of price stability

In its monetary policy strategy, the SNB sets out the manner in which it operationalises its statutory mandate. The strategy consists of the following three elements: a definition of price stability, a conditional inflation forecast over the subsequent three years, and the SNB policy rate. The SNB seeks to keep the secured short-term money market rates close to its policy rate.

Monetary policy strategy

The SNB currently implements its monetary policy by charging negative interest on sight deposits held by banks and other financial market participants, and by intervening in the foreign exchange market as necessary to directly influence the exchange rate.

The SNB equates price stability with a rise in the Swiss consumer price index (CPI) of less than 2% per annum. Deflation, i.e. a sustained decrease in the price level, also breaches the objective of price stability. With its definition of price stability, the SNB takes into account the fact that it cannot steer inflation precisely and that the CPI tends to overstate inflation slightly.

Definition of price stability

Conditional inflation forecast

The inflation forecast published quarterly by the SNB serves as the main indicator for monetary policy decisions and is a key element in its communications. The forecast relates to the three subsequent years and reflects the medium-term focus of monetary policy. With this approach, the SNB takes account of the fact that output and prices react to monetary policy stimuli with – at times considerable – lags. Besides the inflation forecast, the SNB takes into consideration a large number of indicators of domestic and international economic and monetary developments and of financial stability for its monetary policy decisions.

The SNB's inflation forecast assumes that the level of the SNB policy rate applicable at the time of its publication will remain constant over the next three years. It is therefore a conditional forecast that shows how the SNB expects consumer prices to develop with an unchanged interest rate. In this way, the SNB enables the public to gauge whether there will be a need for monetary policy action in the future. If the forecast indicates that the inflation rate is likely to leave the range consistent with price stability, a future monetary policy adjustment is likely. The inflation forecast published by the SNB cannot be compared with those provided by commercial banks or research institutions, as these generally factor in the interest rate adjustments they anticipate.

SNB policy rate

The Swiss National Bank sets the level of the SNB policy rate and communicates this in its monetary policy decision. It seeks to keep the secured short-term money market rates close to the SNB policy rate. The most representative of the secured short-term Swiss franc rates is SARON (Swiss Average Rate Overnight).

Influencing monetary conditions

To ensure price stability, the SNB maintains appropriate monetary conditions. These are determined by the interest rate level and exchange rates. If the interest rate level rises or the Swiss franc appreciates, this leads to a tightening of monetary conditions.

An increase in interest rates dampens the demand for goods and services. As a result, the utilisation of production capacity declines, and inflation falls. Conversely, a reduction in interest rates stimulates aggregate demand, which leads to an increase in the utilisation of production capacity and a rise in inflation.

Role of interest rate level

The SNB currently charges a negative interest rate of -0.75% on sight deposits of banks and other financial market participants. In doing so, it counters the upward pressure on the Swiss franc. Having interest rates in Switzerland at a level that is low by international standards makes Swiss franc investments less attractive, thereby easing upward pressure on the currency. Furthermore, negative interest creates an incentive to invest more. In order to limit the burden on banks and other financial market participants holding sight deposits at the SNB to what is necessary, the SNB grants them exemption thresholds (cf. chapter 2.3, box ‘How negative interest and exemption thresholds work’).

Negative interest on sight deposits at SNB

Besides the interest rate level, the exchange rate also influences monetary conditions. Changes in the exchange rate, like changes in interest rates, have an effect on output and prices. While a depreciation of the Swiss franc has a stimulating effect, an appreciation tends to have a price-dampening effect domestically since imported goods and intermediate products become cheaper as a result.

Role of exchange rate

An independent monetary policy that is geared towards the objective of price stability fundamentally requires flexible exchange rates. Nevertheless, the SNB intervenes in the foreign exchange market as necessary to ensure appropriate monetary conditions. In so doing, it takes the overall currency situation into consideration. Foreign exchange market interventions are mainly required at present when the appreciation of the Swiss franc poses the threat of sustained negative inflation or deflation. Foreign exchange market interventions can also serve to ensure orderly market conditions in phases of high uncertainty.

Foreign exchange market interventions

Macroprudential instruments

Like price stability, financial stability is a prerequisite for sustainable economic growth. Experience from the financial crisis has shown that achieving price stability does not necessarily ensure the stability of the financial system. The authorities have macroprudential instruments at their disposal that can be applied in a targeted manner to address credit market imbalances which threaten financial stability (cf. chapter 6).

Research

Research activities help the SNB fulfil its constitutional and statutory mandate. They enhance the understanding of complex economic interrelationships, promote further development of analytical methods, and provide an important basis for monetary policy decisions. The SNB researches subjects connected with its core tasks, the focus being on monetary policy and financial stability.

Research and studies by SNB employees are published in the SNB Working Papers series, as well as in academic journals. The SNB Research Report, which is published on an annual basis, provides an overview of the latest research activities at the SNB.

The SNB maintains a dialogue with other central banks, universities and research institutes in order to promote knowledge-sharing. It regularly holds conferences and seminars for this purpose. Four research conferences were held in 2021, either virtually or as hybrid events. Furthermore, 20 research and 19 technology and finance seminars were held, the majority as video conferences.

1.2 INTERNATIONAL ECONOMIC DEVELOPMENTS

In 2021, the global economy recovered from the sharp recession the year before. That said, the coronavirus pandemic continued in its second year to shape economic conditions worldwide. Against the fraught backdrop of the pandemic, extensive containment measures remained in place in numerous countries into spring. However, these weighed less strongly on economic activity than when coronavirus first began to spread globally in spring 2020. On the one hand, the measures were less severe overall, and on the other companies and households were also better able to deal with the situation. As the summer approached, the pandemic situation eased in many areas. Added to this, significant progress was made on the vaccination front. The restrictions were relaxed again in many countries, which contributed to strong global economic growth in the second and third quarters. From the autumn onwards, however, infection numbers rose again rapidly in some countries, requiring stricter containment measures to be reintroduced in certain cases. Nonetheless, the global economic recovery continued in the fourth quarter, albeit somewhat subdued.

Global economy recovers

Despite the pandemic, the financial markets were in brighter mood overall. This largely reflected progress made with regard to vaccinations, which enabled economic activity to normalise to a significant extent, as well as an extensive fiscal package passed in the US. Supported by good corporate results, the global equity indices reached new all-time highs. The implied volatility of stocks as measured by option prices – e.g. the VIX index in the US – was markedly lower than the year before. The improved risk sentiment and rising inflation expectations contributed to yields on ten-year government bonds in advanced economies moving higher.

Positive market sentiment

Having already recovered fully by the end of 2020, global trade recorded only limited growth until autumn 2021. The global demand for goods continued to rise, but manufacturing was unable to keep up. The resultant supply shortages led to markedly longer delivery times and price increases for the goods concerned. From November onwards, global trade gained significant momentum, closing the year at 7.0% above the previous year's level.

Sluggish global trade development until autumn

Commodity prices rising

Commodity prices rose significantly as a result of the global economic recovery coupled with tight supply. For instance, the member countries of the Organization of the Petroleum Exporting Countries and Russia (OPEC+) made only a moderate increase in output despite the strong rise in demand for crude oil. In November, the price of Brent crude temporarily reached its highest level since mid-2018 at over USD 85 per barrel. At the end of 2021, it still stood at just under USD 80, having started the year at USD 50. Prices for industrial metals also ended the year higher.

Strong economic rebound in US

After the severe recession in 2020, the US economy rebounded strongly in 2021. GDP grew by 5.7% and had already exceeded its pre-crisis level in the second quarter. This positive development was in part attributable to the more relaxed pandemic situation. Furthermore, economic activity was supported by the monetary and fiscal policy measures implemented since the outbreak of the pandemic. However, supply bottlenecks weighed on industrial production in the second half of the year. Labour market conditions improved overall. In December, the unemployment rate stood at 3.9%, compared with 3.5% before the pandemic. Nonetheless, at the end of the year employment was still considerably below its pre-crisis level. Despite the economic upswing, capacity remained somewhat underutilised on average over the year.

Economic recovery also in euro area

The euro area economy also recovered. GDP returned to its pre-crisis level by the year-end. Economic activity initially declined in the first quarter, before rebounding strongly in the second and third quarters owing to the more favourable development in the pandemic situation. The recovery slowed down again thereafter. On the one hand, supply bottlenecks negatively affected industrial production. On the other, a renewed rapid spread of coronavirus saw some member countries tighten their containment measures again. Average GDP growth for the year stood at 5.2%, following a 6.5% decline in 2020. The unemployment rate fell significantly, and at 7.0% in December was below its pre-crisis level.

Japan's GDP grew by 1.7%, this after a decline of 4.5% in 2020. Economic activity fluctuated strongly over the course of the year as a result of the repeated waves of the pandemic and the corresponding responses to contain them. Added to this came the negative impact of procurement problems in the automotive industry, particularly in the second half of the year. Against this backdrop, GDP remained below its pre-crisis level through to the end of the year. The unemployment rate stood at 2.7% in December, still around half a percentage point higher than before the pandemic.

... and in Japan

After historically low growth of 2.2% in 2020, China's GDP expanded by 8.1% in 2021. The development over the course of the year was also volatile. Strict regional containment measures in line with the zero-COVID strategy repeatedly weighed on economic activity. In addition, there were supply bottlenecks and temporary power outages, which adversely affected manufacturing. The government's regulatory reforms, such as the deleveraging in the real estate sector, also had a curbing effect. There was little change with regard to the urban unemployment rate, which had returned to its pre-crisis level at the end of 2020 at 5.2%.

Moderate recovery in China

Consumer price inflation rose in the advanced economies compared with 2020, and significantly exceeded the targets set by central banks in some instances, particularly in the US. A key driver was the higher oil prices. However, there was also an increase in core inflation, which excludes the volatile categories of energy and food. A major influencing factor in this regard was the recovery of those prices that had fallen markedly at the beginning of the pandemic in 2020. This included prices for transportation services in the US, and for tourism-related services in the euro area. The shortages of certain products owing to the global supply bottlenecks also contributed to the price rises.

Inflation rising in advanced economies

US inflation significantly above target

In the US, headline inflation rose to 4.7%, up from 1.2% in 2020. Core inflation reached 3.6%. The Federal Reserve's preferred price inflation measure for its target of 2.0%, the personal consumption expenditure (PCE) deflator, also increased considerably, and was significantly above the Fed's target level in December at 5.8%. Even excluding the volatile prices for energy and food, it was 4.9% in December.

Higher inflation in euro area, too

In the euro area, headline inflation rose to 2.6% (2020: 0.3%). Core inflation was also higher at 1.5%; it rose markedly from the spring on, and by the end of the year had reached 2.6%, its highest level in the euro area's history. In Germany, VAT was restored to its previous level after having been temporarily lowered in the second half of 2020. This also contributed to the higher rate of inflation in addition to the global factors mentioned above.

Negative inflation owing to special factor in Japan

In Japan, by contrast, consumer prices declined slightly on average for the year (−0.3%), having stagnated in 2020. Core inflation was significantly negative (−0.8%) due to large price reductions for mobile communications. Inflation fluctuated strongly over the course of 2021, with higher energy prices lifting it to 0.8% by the end of the year.

Low inflation in China

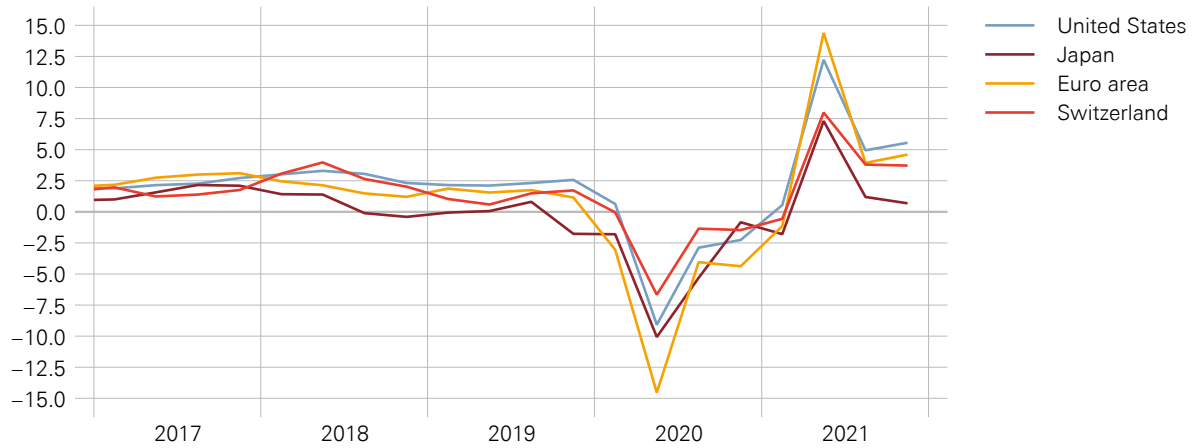
At 0.9%, consumer price inflation in China was lower than in 2020 (2.5%), this being mainly attributable to the decline in food prices. The higher commodity prices had only a minor impact on inflation. At 0.8%, core inflation remained unchanged at a multi-year low.

US begins exit from easy monetary policy

In light of the ongoing recovery on the labour market and the high level of inflation, towards the end of the year the Fed initiated a phased exit from its easy monetary policy. It reduced its net asset purchases from November and plans to end them in March 2022. However, it kept the target range for its policy rate unchanged at 0–0.25%.

GROWTH OF GROSS DOMESTIC PRODUCT

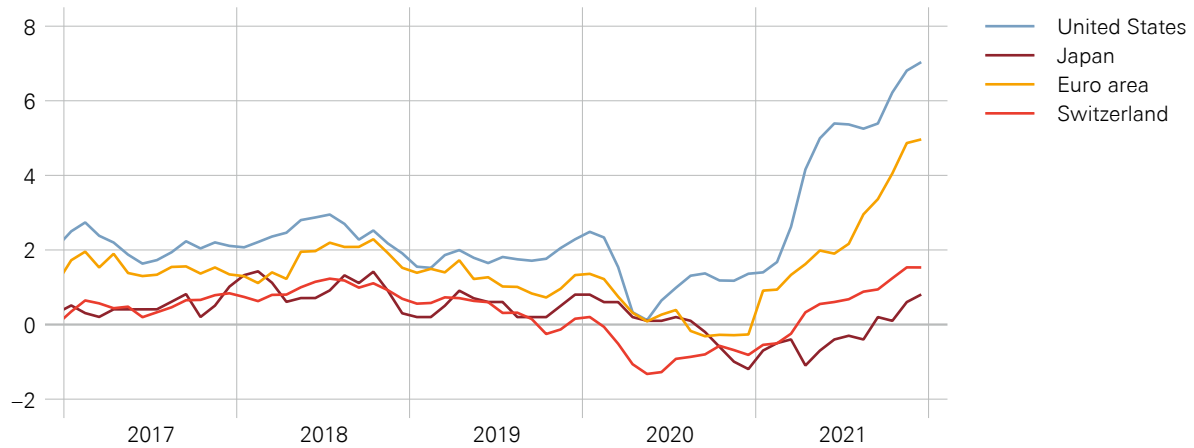
Real, year-on-year change in percent



Source(s): Refinitiv Datastream, SECO, SNB

INFLATION

Consumer prices, year-on-year change in percent



Source(s): Refinitiv Datastream, SFSO

End of ECB's PEPP emergency programme in sight

The European Central Bank viewed the rise in euro area inflation as being transitory, and left its key interest rates unchanged, with the deposit facility rate thus remaining negative (–0.5%). It continued the Pandemic Emergency Purchase Programme (PEPP) introduced during the pandemic. However, it reduced the pace of its monthly asset purchases slightly towards the end of the year, and confirmed that the programme would expire as originally planned in March 2022. Nevertheless, the ECB intends to continue with its regular Asset Purchase Programme (APP) until shortly before it starts raising its key interest rates. The purchase pace is to be temporarily increased in the second and third quarters of 2022.

Slight adjustment to ECB's inflation target

In July, the ECB presented the results of its monetary policy strategy review. It announced that it would now aim for consumer price inflation of 2% over the medium term. The previous inflation target had stood at below, but close to, 2%. In addition, it intends under certain circumstances to allow a transitory period in which inflation is moderately above target.

Expansionary monetary policy in Japan unchanged

The Bank of Japan maintained its monetary policy stance through to the end of the year, and confirmed its willingness to take further easing measures if necessary. It left its short-term deposit rate at –0.1% and the target for 10-year government bond yields at around 0%. However, following a review of its monetary policy tools, it decided on various changes in March aimed at giving it greater latitude. Among other things, it adjusted the rules regarding the promotion of lending with a view to mitigating any negative impact on banks of a further cut in interest rates.

Further monetary policy easing in China

The People's Bank of China left its policy interest rates unchanged, but lowered the reserve requirement rate in July and December by a total of one percentage point. It also supported small and medium-sized companies with financial assistance.

1.3 ECONOMIC DEVELOPMENTS IN SWITZERLAND

The Swiss economy recovered quickly from 2020's severe downturn. Economic momentum was still weak in the first quarter owing to the second wave of the pandemic and the associated containment measures, but GDP increased strongly from the second quarter onwards as these were eased. There was a significant rebound in the services sector in particular, which had been hit hard by the pandemic. In addition, manufacturing profited from rising foreign demand. GDP growth slowed in the fourth quarter. Supply bottlenecks posed a challenge for Swiss companies, too, but had only a limited impact on the economic recovery. The situation in the labour market improved over the course of the year, with marked declines in both unemployment and the use of short-time working.

Rapid economic recovery

According to the initial estimate by the State Secretariat for Economic Affairs (SECO), GDP increased by 3.7% in 2021, thereby exceeding the pre-crisis level of 2019 by 1.2% on average over the year. The Swiss economy recovered quickly by international comparison. That said, GDP was still lower than would have been expected without the pandemic.

Strong GDP growth

As the economy recovered, the utilisation of production capacity improved. This was the case for technical capacity and personnel alike. The output gap, defined as the percentage deviation of GDP from estimated potential output, was practically closed at the end of the year. According to company surveys, utilisation increased in many industries. Nevertheless, in certain areas of the services sector, hotels for example, it remained lower than before the pandemic.

Output gap practically closed

Value added increased in all major industries except wholesale trade. Growth was especially strong in manufacturing and retail trade; these benefited from the shift in demand from services to goods as a result of the pandemic. In those hit particularly hard by the crisis – such as hospitality, transportation and personal services – value added had not returned to its pre-crisis levels by the end of 2021, however.

Broad-based growth across industries

Recovery in private consumption

Private consumption recovered from the historic decline in 2020. That said, the coronavirus containment measures again exerted a strong influence. Private consumption slumped in the first quarter as a result of the measures implemented (such as closures of restaurants, non-essential shops, and recreational and cultural facilities). However, it recovered significantly with the gradual lifting of these containment measures, and by the end of the year had exceeded its pre-crisis level. Nonetheless, expenditure was still lower in some consumption categories, in particular with regard to restaurants and hotels, transport and recreational/cultural activities. The estimated saving rate was higher than before the pandemic.

Strong growth in government consumption

As a result of extraordinary expenditure on coronavirus tests and vaccines, government consumption again increased strongly.

Marked recovery in goods exports

As the global economy recovered, exports recorded strong growth. There was a marked expansion in goods exports, and that on a broad base. Services exports, too, recovered significantly. Averaged over the year, however, they were below their pre-crisis level, among other things because travel restrictions and changes in behaviour impacted on tourism and transport services.

Rise in equipment investment

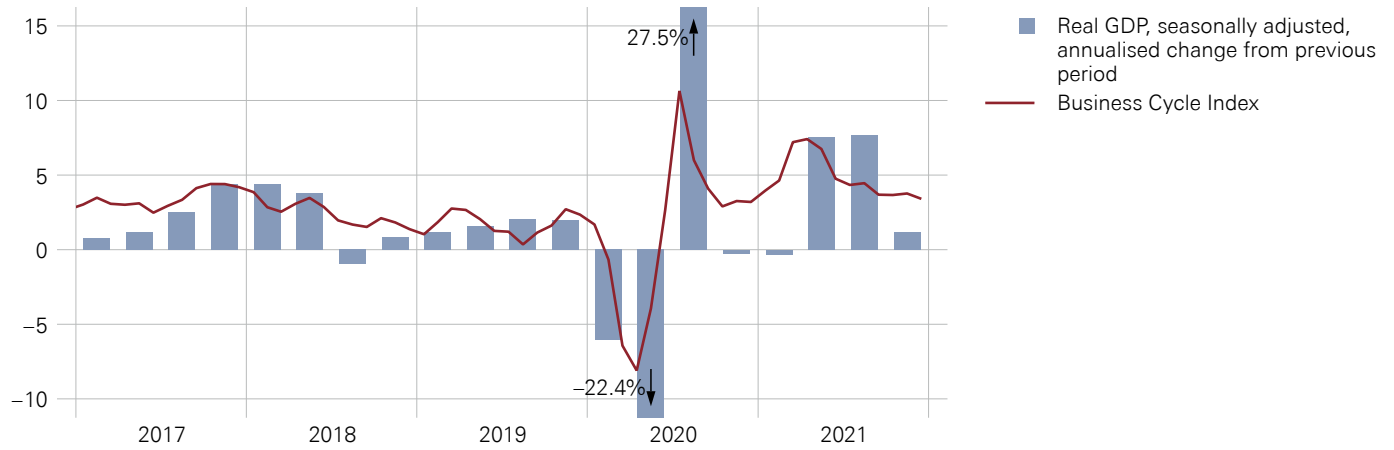
Against the backdrop of the economic recovery in Switzerland and abroad, improved capacity utilisation and favourable financing conditions, companies increased their investment in equipment. Despite the supply bottlenecks for certain imported goods, expenditure on investment goods exceeded the pre-crisis level.

... and in construction investment

Construction investment increased again somewhat following the temporary closure of some construction sites in 2020 due to the pandemic. Over the course of the year it stagnated, however, despite high demand for owner-occupied residential property, and the dwelling vacancy rate declined for the first time since 2009.

BUSINESS CYCLE INDEX AND GDP GROWTH

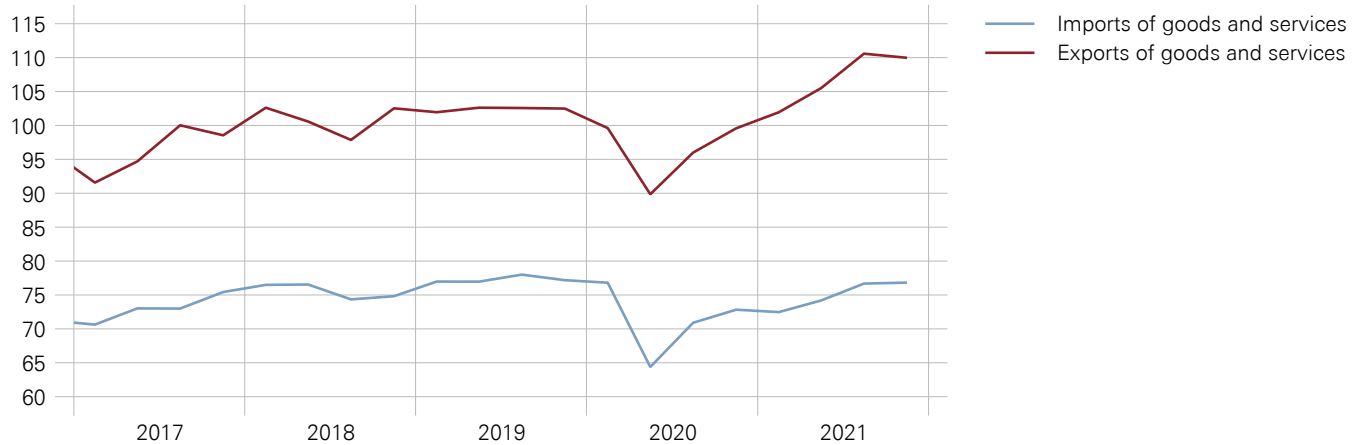
In percent



Source(s): SECO, SNB

FOREIGN TRADE

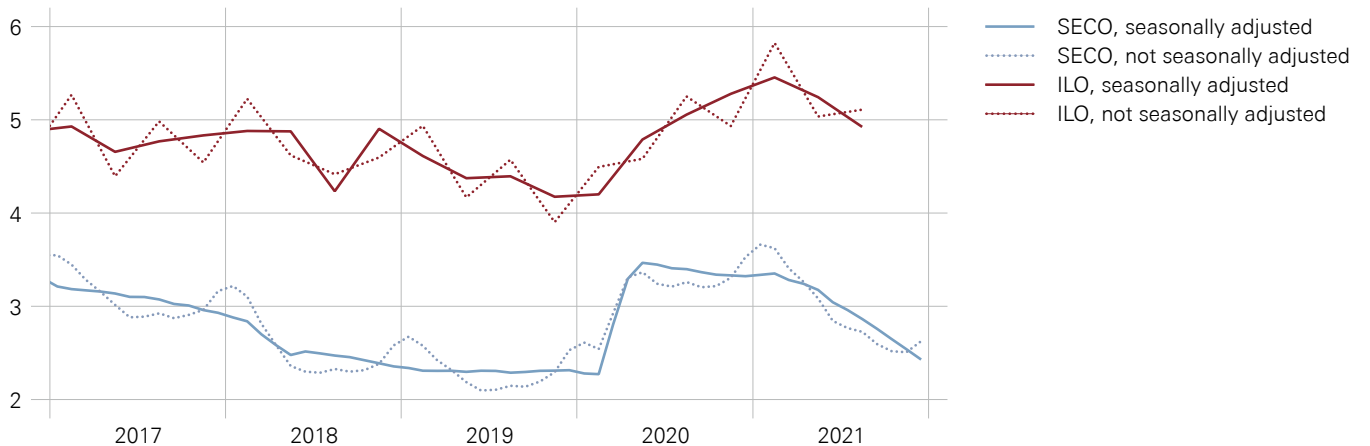
In CHF billions, in real terms, seasonally adjusted



Source(s): SECO

UNEMPLOYMENT RATE

In percent



Source(s): SECO, SFSO

Decline in unemployment	<p>The recovery in economic activity was also reflected in the labour market. There was a considerable decrease in the number of people registered as unemployed at the regional employment offices over the year. The unemployment rate published by SECO on the basis of the employment office data declined from 3.3% to 2.4% between January and December. It thus ended the year only just above its pre-crisis level of 2.3%. The unemployment rate calculated by the Swiss Federal Statistical Office (SFSO) in line with the definition of the International Labour Organization (ILO) also declined significantly, amounting to 4.9% in the third quarter, down from 5.5% at the beginning of the year. Prior to the crisis, it stood at 4.1%. The SFSO's figures are based on a quarterly survey of households, and also include unemployed people who are not registered, or are no longer registered, with the regional employment offices. As a result, the figures are normally higher than those calculated by SECO.</p>
Higher employment	<p>The number of employed persons also recovered from spring onwards. On average over the year, it increased by 0.8%, after a slight decline in 2020. The improvement was reflected over the course of the year in construction, manufacturing and the services sector.</p>
Significant decline in short-time working	<p>As the labour market recovered, the use of short-time working decreased further. According to provisional figures from SECO, the number of people in short-time work fell considerably from 510,000 to 40,000 between January and December. Thus, at the end of the year, just under 1.0% of all economically active persons were still affected by short-time working.</p>
Rise in total real wage bill	<p>The total real wage bill, comprising wages paid and compensation for short-time working, increased by 2.0%. Although the compensation for short-time working was lower than in 2020, provisional figures show that at around CHF 4.0 billion it still accounted for around 1.0% of the total wage bill.</p>

REAL GROSS DOMESTIC PRODUCT

Year-on-year change in percent

	2016	2017	2018	2019	2020	2021
Private consumption	1.6	1.2	0.7	1.4	-3.7	2.6
Government consumption	0.4	0.6	1.0	0.7	3.5	2.7
Gross fixed capital formation	2.9	3.6	1.3	0.6	-1.8	0.3
Construction	-0.2	1.5	0.0	-0.9	-0.4	1.3
Equipment	4.9	4.9	2.1	1.4	-2.5	4.0
Domestic final demand¹	1.8	1.8	0.9	1.1	-2.2	2.7
Exports of goods and services ¹	6.8	3.4	4.9	1.5	-5.6	11.4
Aggregate demand¹	2.6	2.2	3.1	1.5	-4.1	4.2
Imports of goods and services ¹	4.0	3.8	3.6	2.3	-8.0	5.4
Gross domestic product	2.0	1.6	2.9	1.2	-2.4	3.7

¹ Excluding valuables (non-monetary gold and other precious metals, precious stones and gems as well as objets d'art and antiques).

Source(s): SECO, SFSO

Economic picture derived from discussions with companies

The SNB bases its economic assessment on a broad array of information. This includes information gathered every quarter by the SNB's delegates for regional economic relations during discussions with over 200 companies from different industries. The findings of these talks are summarised in the 'Business cycle signals' section of the SNB's Quarterly Bulletin.

At the beginning of the year, the company talks were shaped by the pandemic and the measures to contain it. The economy contracted overall, albeit significantly less so than in the first wave in spring 2020. Contributory factors included companies being able to adapt to the containment measures better, fewer industries overall being directly affected, and international demand holding at a higher level. Closures ordered by the authorities and other restrictions had a curbing effect on the services sector above all, while business activity in the manufacturing sector continued to improve slightly.

The discussions in the second quarter indicated that the economy had found its feet again and that turnover had risen significantly. The easing of measures to contain the pandemic and the favourable international economic situation were contributory factors. Nevertheless, the utilisation of technical production capacity and infrastructure remained weaker than usual. In the second quarter, there were also signs of a marked deterioration with regard to procurement bottlenecks. While at the beginning of the year the reports of supply bottlenecks centred above all on electronic components, in the course of the second quarter a broad range of raw materials and intermediate products were affected.

In the third quarter, the companies reported that the recovery had continued. In the services sector, the further easing of containment measures led to significant increases in turnover, particularly at companies affected directly. At the same time, manufacturing benefited from brisk demand from the US, and largely also from Europe, while business in China was no longer seen as being quite as dynamic as in previous quarters. Procurement bottlenecks were still seen as a major challenge; so too, increasingly, was the recruitment of specialist staff.

According to the companies contacted, growth continued in the fourth quarter at a slightly reduced pace. Services companies from a wide range of industries reported positive developments in activity. Production losses resulting from the ongoing procurement bottlenecks could not be prevented everywhere in the manufacturing sector. However, turnover was mostly higher thanks to dynamic export business. Owing to the rising number of cases and the new coronavirus variant discovered at the end of November, uncertainty regarding the course of the pandemic rose again. Nonetheless, the companies were looking to economic developments in the coming quarters with confidence. Against the backdrop of modest salary adjustments for the year under review, higher inflation and a labour market regarded as being increasingly tight, the companies anticipated somewhat stronger, albeit still moderate, wage growth in 2022.

Higher producer and import price inflation

Inflation as measured by the producer and import price index rose continuously throughout 2021, with the annual average standing at 2.7%. This compares with –3.0% in 2020. There was a significant increase in the inflation rate for oil products above all, but also for intermediate inputs. In the case of the latter, the rise was likely due to global supply bottlenecks.

Inflation as measured by the Swiss consumer price index (CPI) also rose steadily, from –0.4% in the first quarter to 1.4% in the fourth. It was back in the range consistent with price stability from the second quarter onwards, and the average for the year was 0.6% (2020: –0.7%). This increase was mainly attributable to the marked rise in inflation for imported goods and services.

CPI inflation positive again

The latter rose from –1.3% in the first quarter to 3.7% in the fourth. This development was influenced to a significant extent by the considerably higher prices for oil products. Furthermore, there were increases in the prices for certain imported goods affected by the global supply bottlenecks. The prices for package holidays and air travel also stabilised following their decline in 2020 after the outbreak of the coronavirus pandemic.

The inflation rate for domestic goods and services also rose over the course of the year, from –0.2% in the first quarter to 0.7% in the fourth. This was mainly due to the higher inflation for tourism-related services. Meanwhile, averaged over the year, rent inflation remained unchanged compared with 2020 at 0.9%.

CPI headline inflation can be significantly affected in the short term by fluctuations in specific price components. In order to analyse the underlying inflation, the SNB therefore calculates core inflation using a trimmed mean. This measure excludes, each month, those goods with the largest and the smallest price changes compared to the same month one year earlier. Specifically, it factors out the 15% of items in the CPI basket with the highest price inflation and the 15% with the lowest. The core inflation rate calculated using the trimmed mean rose slightly during 2021 and averaged 0.4% for the year (2020: 0.1%).

Slight increase in core inflation

Throughout 2021, the short and longer-term inflation expectations derived from surveys remained within the range consistent with price stability, which the SNB equates to a rise in the CPI of less than 2.0% per year. While the short-term expectations rose over the course of the year, there was little change in the longer-term inflation expectations.

Inflation expectations in range consistent with price stability

SWISS CONSUMER PRICE INDEX AND COMPONENTS

Year-on-year change in percent

	2020	2021	Q 1	Q 2	Q 3	2021 Q 4
Consumer price index, overall	-0.7	0.6	-0.4	0.5	0.8	1.4
Domestic goods and services	0.0	0.3	-0.2	0.2	0.5	0.7
Goods	0.0	0.0	0.0	-0.3	0.0	0.2
Services	0.0	0.4	-0.2	0.3	0.6	0.9
Private services (excluding rents)	-0.4	0.3	-0.6	0.3	0.5	0.9
Rents	0.9	0.9	0.4	0.7	1.1	1.3
Public services	-0.8	-0.1	-0.3	-0.3	0.1	0.0
Imported goods and services	-2.9	1.5	-1.3	1.5	2.0	3.7
Excluding oil products	-1.4	-0.4	-1.2	-0.5	-0.4	0.5
Oil products	-13.7	17.9	-1.3	19.2	23.7	32.3
Core inflation						
Trimmed mean	0.1	0.4	0.1	0.3	0.5	0.7

Source(s): SFSO, SNB

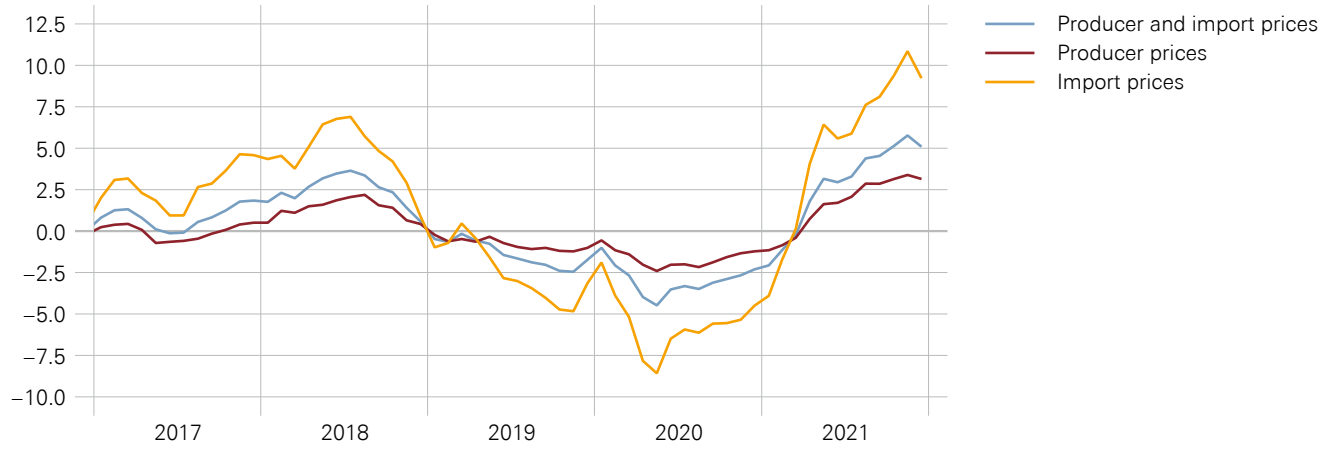
1.4 MONETARY POLICY IN 2021

Continuation of expansionary monetary policy

The SNB maintained its expansionary monetary policy in 2021. It thus helped the economy to recover further from the downturn caused by the coronavirus pandemic and the associated containment measures. It left the SNB policy rate at -0.75% and intervened in the foreign exchange market as necessary. The Swiss franc remained highly valued and was subject to upward pressure at times. In view of higher inflation abroad and rising inflation in Switzerland, the SNB allowed the Swiss franc to appreciate by a certain amount. This counteracted a rise in prices domestically, as the appreciation of the franc made imports cheaper, and so contributed to price stability in Switzerland. Inflation remained subdued, and the inflation forecasts published quarterly by the SNB indicated that price stability could be maintained in the medium term assuming the SNB policy rate remained unchanged. Overall, an expansionary monetary policy continued to be necessary to ensure appropriate monetary conditions.

PRODUCER AND IMPORT PRICES

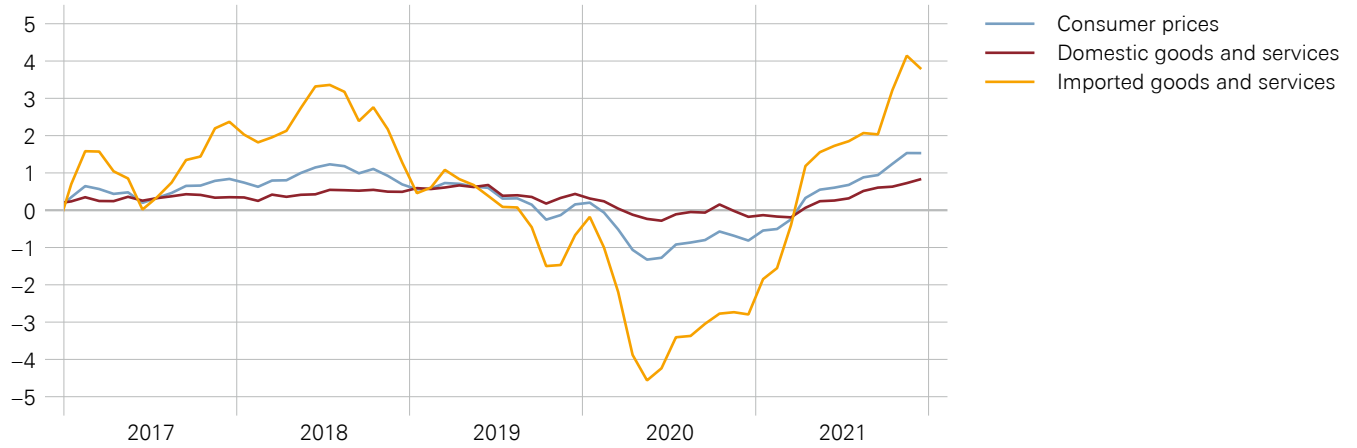
Year-on-year change in percent



Source(s): SFSO

CONSUMER PRICES

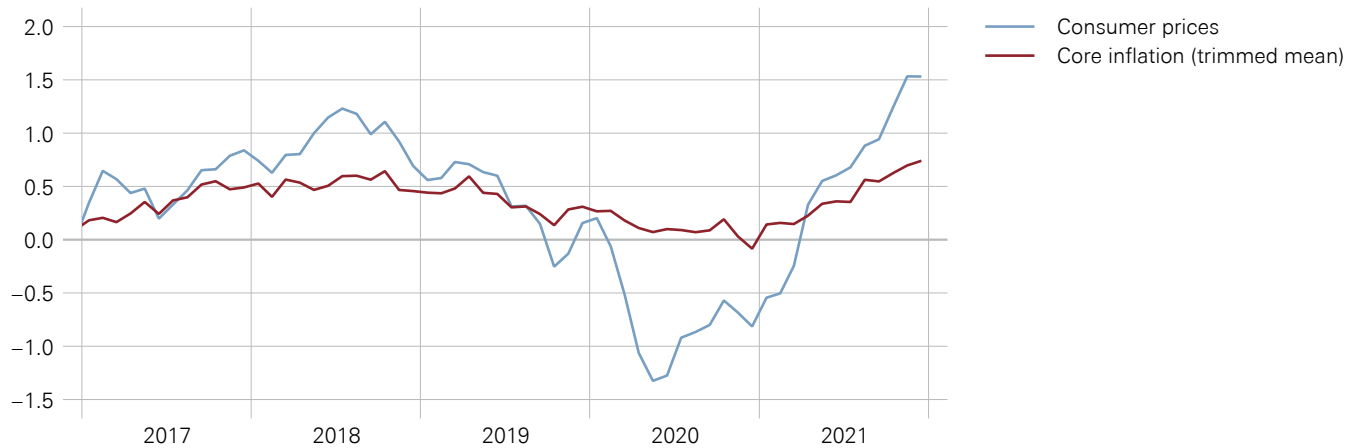
Year-on-year change in percent



Source(s): SFSO

CORE INFLATION

Year-on-year change in percent



Source(s): SFSO, SNB

Money market rates close to SNB policy rate

The SNB seeks to keep the secured short-term money market rates close to the SNB policy rate. For this purpose, it charges negative interest on sight deposits held by banks and other financial market participants at the SNB which exceed a given exemption threshold. At -0.75% , the negative interest rate corresponds to the SNB policy rate. SARON, the most representative short-term Swiss franc rate, was slightly above the SNB policy rate in 2021. The low interest rates contributed to the recovery by ensuring favourable financing conditions for the economy and the public sector.

Stable interest rate differentials versus euro area and US

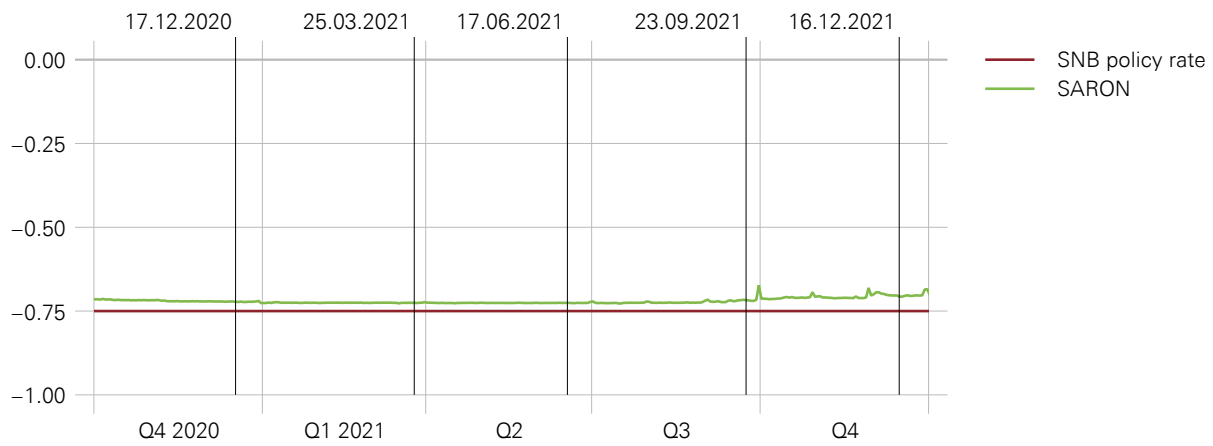
Like the SNB, the European Central Bank (ECB) and the US Federal Reserve (Fed) made no change to their key interest rates. The ECB's main refinancing rate and deposit rate were 0% and -0.5% respectively, while the Fed's target range for the federal funds rate was 0% to 0.25% . Thus the differences between short-term Swiss franc interest rates and short-term euro and US dollar interest rates remained largely unchanged. Measured by one-month overnight index swap rates, short-term euro and US dollar interest rates were on average around 0.15 and 0.8 percentage points higher in 2021 than the corresponding Swiss franc rates.

Increase in capital market yields

In contrast to the money market interest rates, long-term capital market yields were higher worldwide at the end of 2021 than in the previous year. In historical terms, however, they were still low. Brighter economic prospects as a result of vaccination programmes, a pandemic situation that was more relaxed at times, as well as higher inflation expectations pushed yields upwards. New information on the course of the coronavirus pandemic and the associated uncertainty repeatedly led to volatility on the capital market. The yield movements of Swiss Confederation bonds were similar to those of their counterparts abroad. However, the increase was somewhat less pronounced due to stable inflation expectations in Switzerland. The yield on ten-year Confederation bonds rose from -0.5% at the beginning of 2021 to -0.1% at the end of the year. With the rise in long-term yields, the yield curve at the end of 2021 was somewhat steeper than a year earlier.

SNB POLICY RATE AND SARON

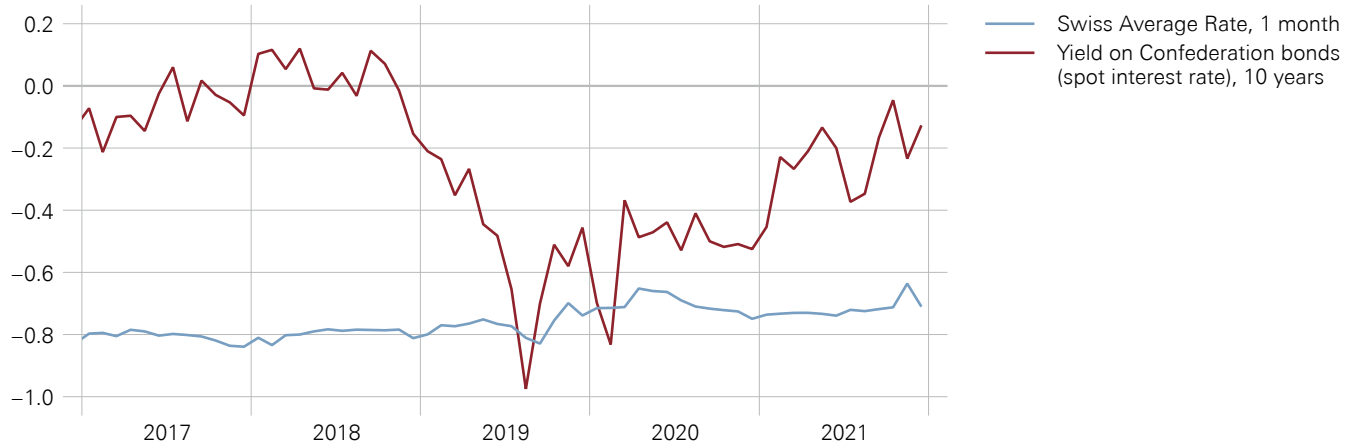
End-of-day values in percent, dates of quarterly monetary policy assessments



Source(s): SIX Swiss Exchange Ltd, SNB

MONEY AND CAPITAL MARKET RATES

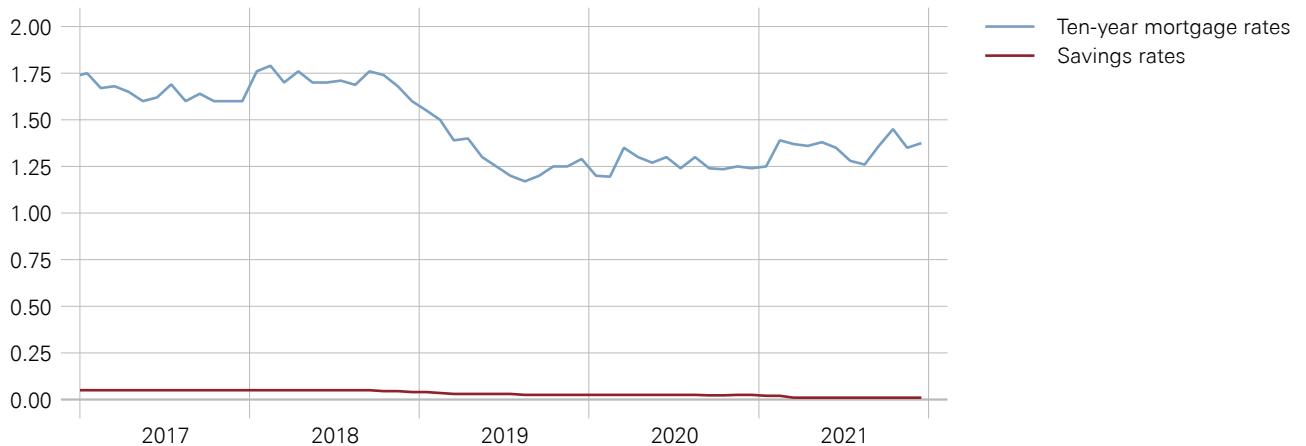
Monthly averages in percent



Source(s): SIX Swiss Exchange Ltd, SNB

BANK INTEREST RATES

Month-end values in percent



Source(s): SNB

Stable lending and deposit rates

Published interest rates for new mortgages remained stable at a low level during the year. The mortgage reference rate relevant for housing rents, which corresponds to the volume-weighted average interest rate of all outstanding mortgages in Switzerland and is rounded to a quarter of a percentage point, remained at 1.25%. The deposit rates of the banks also hardly changed. Although banks partly charged negative interest on time deposits, the average interest rates on payment accounts and savings deposits of private customers were constant at just above zero.

Foreign exchange market interventions

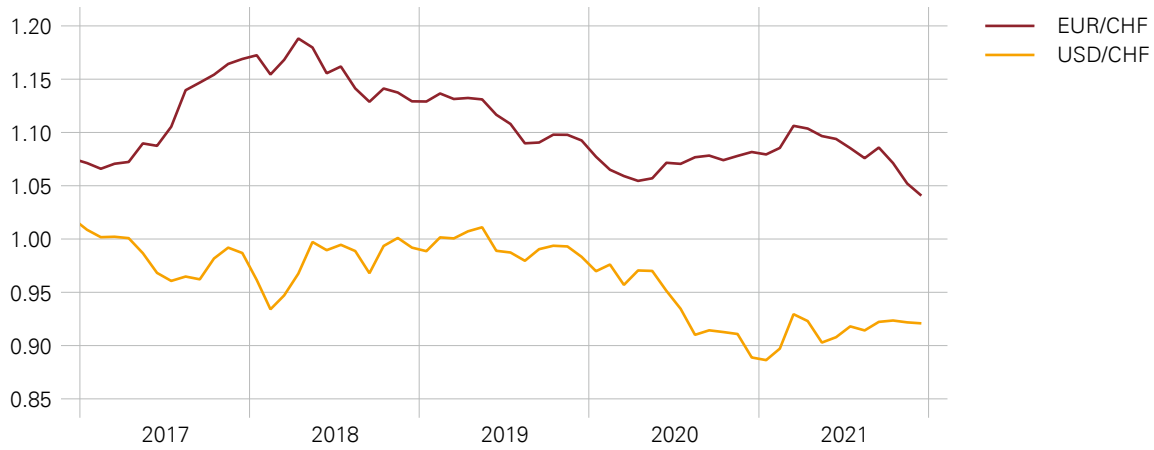
At its quarterly monetary policy assessments, the SNB regularly confirmed its willingness to intervene in the foreign exchange market as necessary in order to counter upward pressure on the Swiss franc. In addition to the negative interest on SNB sight deposits, foreign exchange market interventions continued to be an important instrument for the SNB in 2021 to ensure appropriate monetary conditions. Compared to 2020, however, the SNB saw itself required to intervene less often and to a significantly lesser extent. Over the course of 2021, the SNB purchased foreign exchange worth CHF 21.1 billion (2020: CHF 109.7 billion).

High valuation of Swiss franc

The nominal trade-weighted external value of the Swiss franc declined noticeably in the first quarter amid global vaccination programmes and receding uncertainty. However, the Swiss franc appreciated again in the following quarters, so that the nominal trade-weighted exchange rate index was 1.3% higher at the end of 2021 than at the beginning of the year. The Swiss franc appreciated by 4.3% against the euro over the year, whereas it lost 3.6% against the US dollar and 2.5% against the pound sterling. While the Swiss franc's nominal external value strengthened somewhat, it depreciated by around 2.2% on a real trade-weighted basis over the same period. In a long-term comparison, the Swiss franc remains highly valued.

EXCHANGE RATES

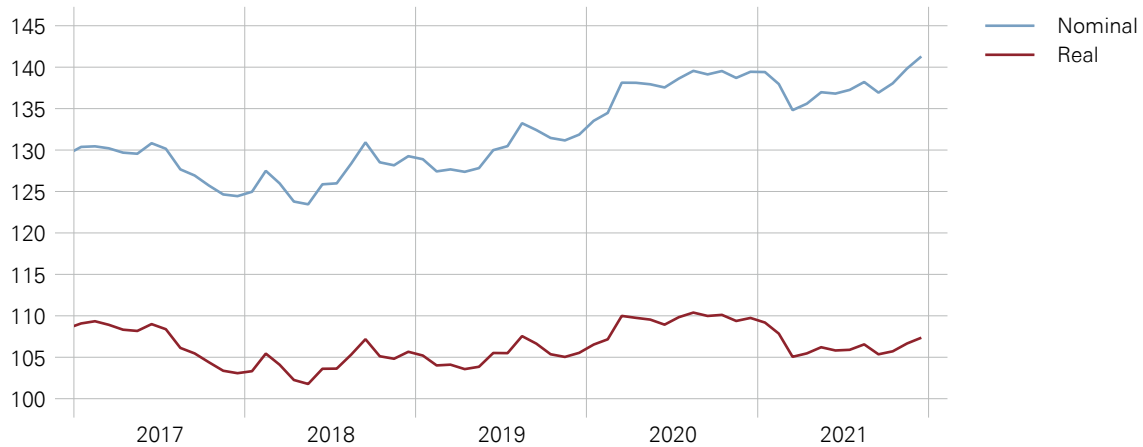
Monthly averages



Source(s): SNB

TRADE-WEIGHTED SWISS FRANC EXCHANGE RATES

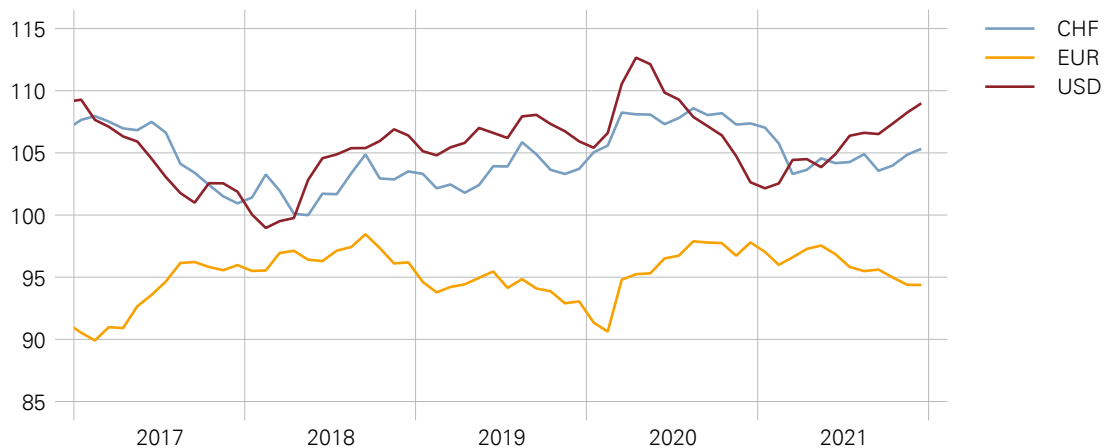
Index: average since 1990 = 100



Source(s): SNB

TRADE-WEIGHTED EXCHANGE RATES IN INTERNATIONAL COMPARISON

Real, 61 countries, index: average since 1990 = 100



Source(s): BIS, SNB

Low growth in monetary base

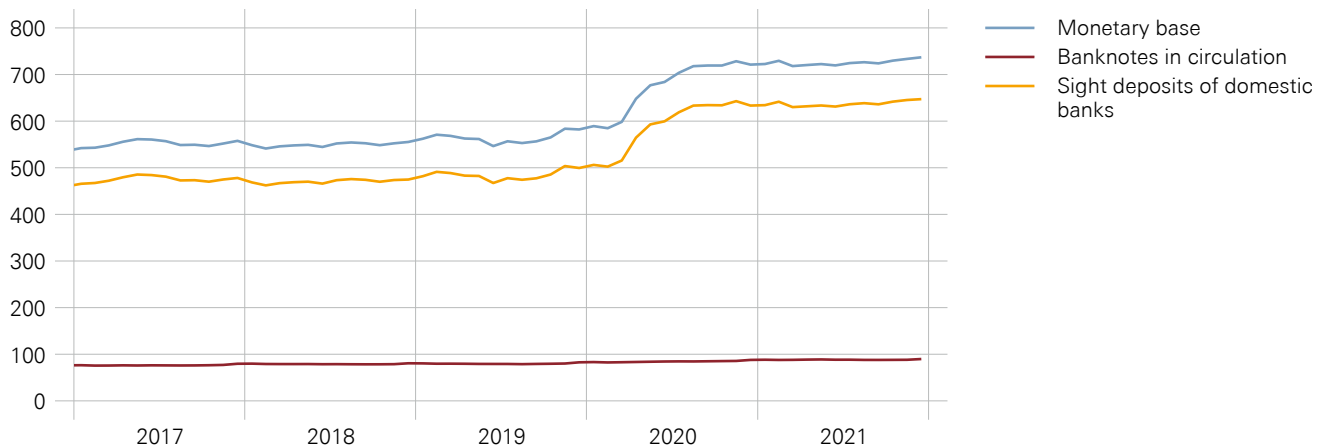
The monetary base, which is made up of banknotes in circulation and domestic banks' sight deposits with the SNB, increased only slightly, by 2.2%, in 2021. In the previous year, foreign exchange market interventions, the utilisation of the SNB COVID-19 refinancing facility (CRF) and repo operations by the SNB had led to a 23.9% rise in the monetary base. Excess liquidity, which is calculated as the difference between the liquidity held by banks (banknotes, coins and sight deposits at the SNB) and the level of liquidity stipulated under the minimum reserve requirements (cf. chapter 2.4), also hardly changed. It has remained at a very high level. As long as credit growth does not increase significantly, however, this does not entail any risk of inflation. Furthermore, the SNB has sufficient instruments at its disposal to absorb liquidity rapidly and on a large scale if necessary.

Moderate growth in monetary aggregates and bank lending

Growth in the monetary aggregates was weaker in 2021 than in the previous year. At the end of 2021, the broad monetary aggregates M2 (currency in circulation, sight deposits, transaction accounts and savings deposits) and M3 (M2 plus time deposits) were 1.5% and 1.4% higher year-on-year respectively. In 2020, M2 and M3 had increased by 6.0% and 6.5% respectively, because of the liquidity created by the COVID-19 bridging loans. The increase in bank loans to domestic customers continued in 2021. The volume of mortgage lending, which accounts for 85% of bank lending, was 3.3% higher at the end of 2021 than a year earlier, thus growing slightly faster than the previous year's expansion of 3.2%. Other bank loans, whose growth of 6.7% in 2020 had been strongly influenced by COVID-19 bridging loans, increased by 2.9% in 2021. This was primarily due to a rise in loans in foreign currencies. The volume of other loans in Swiss francs remained virtually unchanged in 2021 compared to the previous year, which was also due to the first repayments of COVID-19 bridging loans.

MONETARY BASE AND COMPONENTS

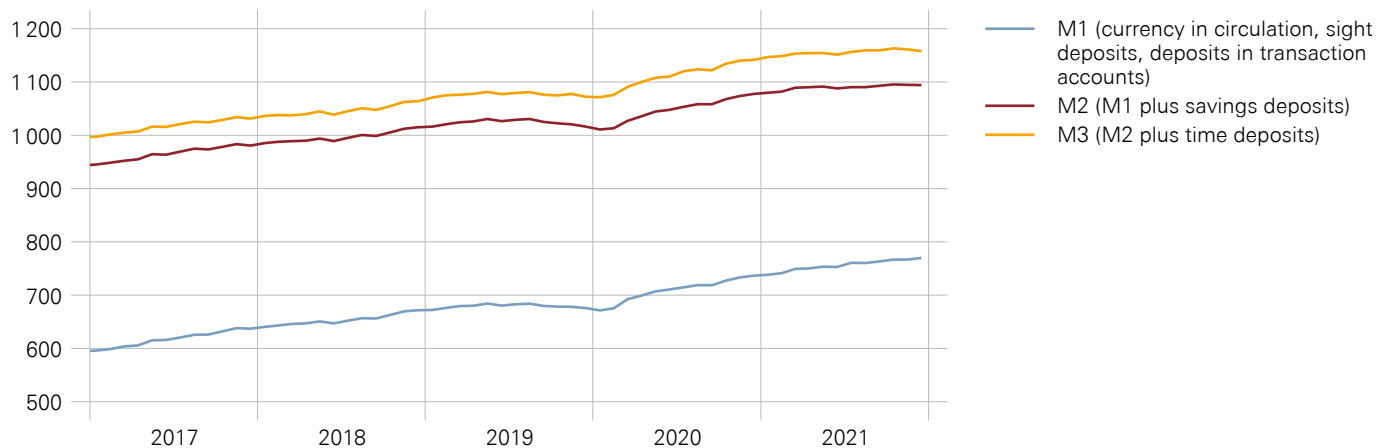
Monthly averages in CHF billions



Source(s): SNB

LEVEL OF MONETARY AGGREGATES

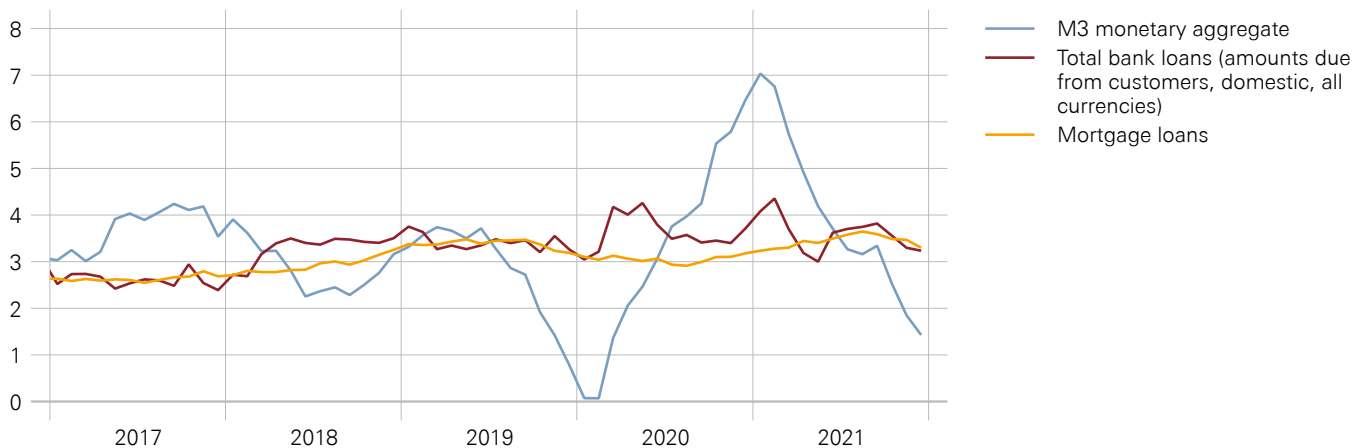
Month-end values in CHF billions



Source(s): SNB

GROWTH OF MONETARY AND CREDIT AGGREGATES

Year-on-year change in percent



Source(s): SNB

Repayment of COVID-19 loans

Between 26 March 2020 and 31 July 2020, companies could apply for loans guaranteed by the federal government to bridge liquidity bottlenecks caused by the pandemic. These COVID-19 bridging loans were granted by the banks, while the federal government and the cantons provided guarantees to cover defaults and the SNB enabled the banks to refinance at the SNB policy rate of -0.75% via the newly created SNB COVID-19 refinancing facility. A total of 137,852 bridging loans amounting to CHF 16.9 billion were granted. By the end of 2021, 15% of all COVID-19 loans, amounting to 26% of the total loan volume, had been repaid in full.

International scenario for forecasts

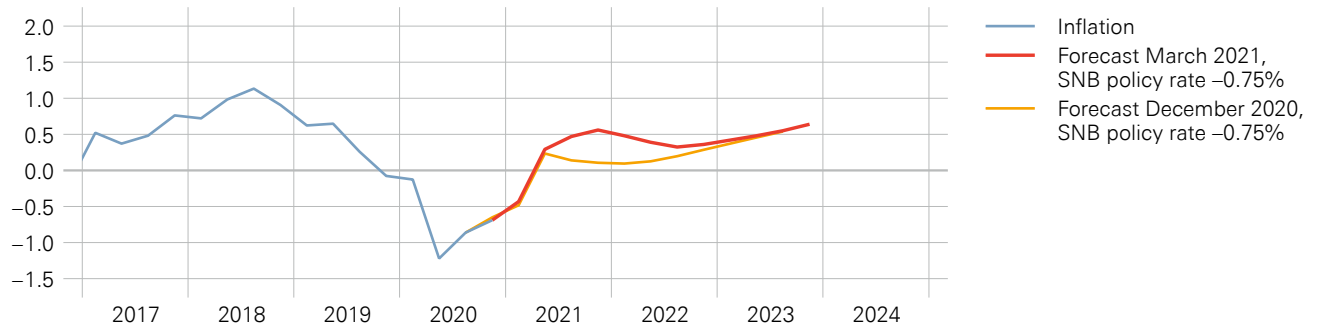
The conditional inflation forecasts published by the SNB as part of its quarterly monetary policy assessments of March, June, September and December are based on scenarios for the global economy. An oil price assumption is also taken into account, which corresponds approximately to the market price per barrel of North Sea Brent at the time of the forecast. Following the global economic downturn in 2020 as a result of the coronavirus pandemic, the SNB had assumed in December 2020 that the global economy would recover in 2021 and grow by 6.8%. This forecast was revised upwards in March against the backdrop of the vaccination programmes launched worldwide and the supportive effect of monetary and fiscal policy measures. As the year progressed, the SNB slightly lowered its growth expectations for the global economy in 2021. Furthermore, in December the SNB expected the global economic recovery to continue in 2022.

Growth forecast for Switzerland

At the end of 2020, the SNB expected GDP growth for Switzerland of between 2.5% and 3.0% for 2021. This reflected the expected recovery from the pandemic-related decline in output. In March 2021, the SNB confirmed this assessment. In June, after the GDP recovery in the first quarter proved to be better than expected, the SNB initially raised its growth forecast to 3.5%, but in September lowered it again to 3.0%. In the third quarter, real GDP grew surprisingly strongly and exceeded its pre-crisis level for the first time. Against this backdrop, in December the SNB revised its growth expectation for 2021 to 3.5% and anticipated growth for 2022 of around 3.0%.

CONDITIONAL INFLATION FORECAST OF MARCH 2021

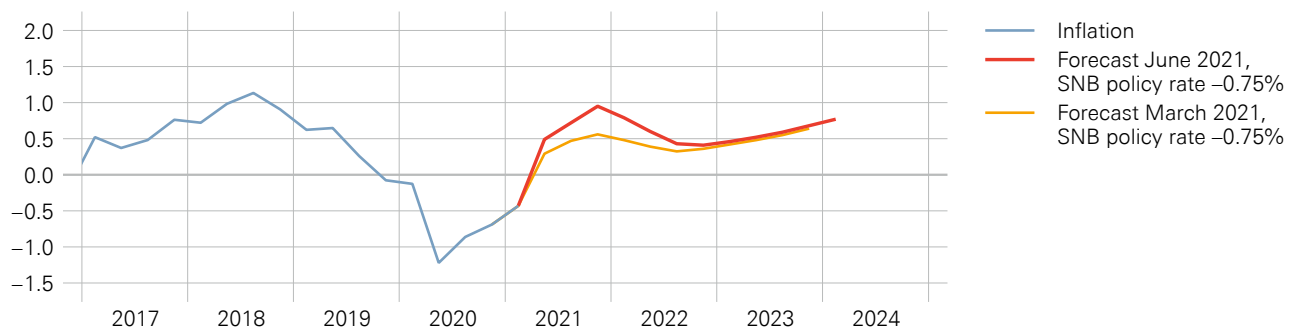
Year-on-year change in Swiss consumer price index in percent



Source(s): SFSO, SNB

CONDITIONAL INFLATION FORECAST OF JUNE 2021

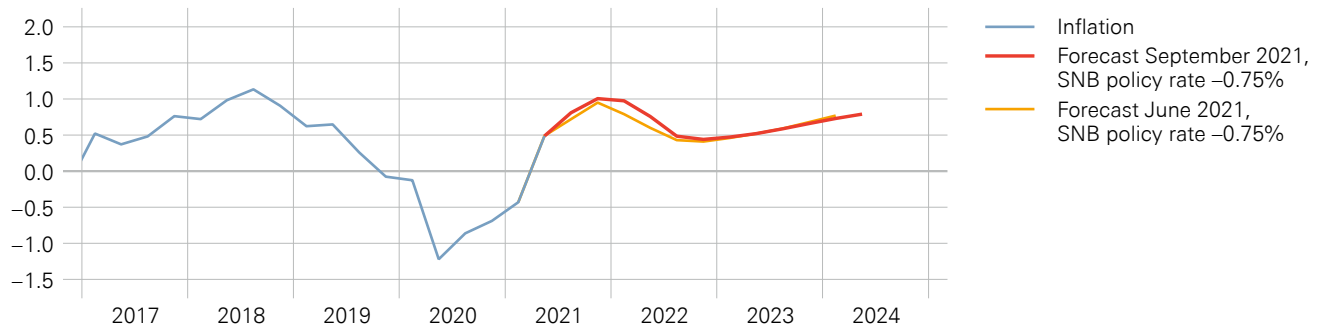
Year-on-year change in Swiss consumer price index in percent



Source(s): SFSO, SNB

CONDITIONAL INFLATION FORECAST OF SEPTEMBER 2021

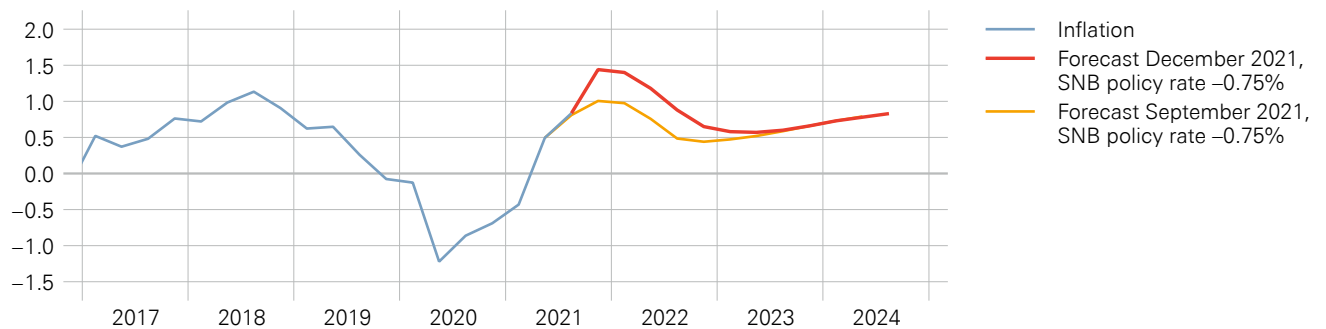
Year-on-year change in Swiss consumer price index in percent



Source(s): SFSO, SNB

CONDITIONAL INFLATION FORECAST OF DECEMBER 2021

Year-on-year change in Swiss consumer price index in percent



Source(s): SFSO, SNB

Conditional inflation forecast

The conditional inflation forecasts published as part of the quarterly monetary policy assessments are based on the assumption that the SNB policy rate remains constant over the three-year forecast horizon. In 2021, an interest rate of -0.75% was assumed in all forecasts. At the end of 2020, the SNB had assumed that inflation would average 0% in 2021 and 0.2% in 2022. Up to December, the conditional inflation forecast for the short term was repeatedly revised upwards, to 0.6% for 2021 and to 1.0% for 2022. The conditional inflation forecast for 2023, first published in March, also rose slightly from 0.5% to 0.6% in December. The reasons for the gradual correction of the inflation forecast were mainly the increased prices for oil products and tourism-related services, which had fallen in 2020. In addition, supply bottlenecks had an impact on the prices of affected goods categories. Despite the upward revision of the conditional inflation forecast, the SNB's forecasts remained in the target range of 0% to 2.0% , which the SNB equates with price stability, over the entire three-year horizon.

Ongoing uncertainty

In its communications, the SNB regularly drew attention to risks that could lead to an adjustment in the forecasts and necessitate a reassessment of the situation. One of the key elements contributing to uncertainty was the further course of the pandemic, which was a significant determinant of economic activity. The assessment of the impact of the pandemic, and the health and economic policy measures taken to contain it, also remained a major factor of uncertainty due to the lack of experience of the situation. However, the SNB also pointed out that the economic policy measures taken in many countries could support the recovery more strongly than expected.

Climate change – a challenge for monetary policy, financial stability and investment policy

Climate change is an issue that attracts great public interest, as it poses considerable challenges for society, the economy and politics. The SNB has been working intensively on this topic for some time now. Within the framework of its statutory mandate, it takes into account in its activities possible consequences of climate change for the economy and thus for monetary policy, for financial stability and for the management of currency reserves. The SNB also works closely with other central banks and authorities such as FINMA and participates in the international exchange of experience on climate issues as a member of the Central Banks and Supervisors Network for Greening the Financial System (NGFS) (cf. chapter 7.2.6).

There are primarily two ways in which climate change can affect monetary policy. First, it can lead to structural change in the economy. This rather slow and steady process must be taken into account in the SNB's forecasting models over the course of time. Second, political and regulatory measures against climate change can lead to sudden changes in the prices of certain goods. The SNB analyses the potential impact of these changes on economic growth and inflation, and assesses the implications that may arise for monetary policy as a result.

Climate change can also affect the financial system, on the one hand through an increase in the frequency and severity of natural disasters, and on the other through changes to climate policy and to the corresponding regulations. The SNB is working on integrating climate risks into its financial stability monitoring. To this end, it is collaborating on a pilot project with FINMA and the University of Zurich to identify and measure transition risks – i.e. risks associated with the transition to a low-carbon economy – at Switzerland's globally active banks. The findings will help decision-makers assess whether these risks are adequately covered or whether action needs to be taken.

Finally, climate change also affects the SNB's investment policy. Climate risks and adjustments to climate policy can trigger or amplify market fluctuations and influence the attractiveness of assets. From an investment perspective, such risks are essentially no different from other financial risks and are accordingly taken into account by the SNB. To manage risks, the SNB diversifies its investments very broadly. Its equity portfolios, for example, contain shares in the various economic sectors based fundamentally on their market capitalisation. This ensures that risk concentrations are avoided as far as possible and that structural changes in the global economy are also reflected in the SNB's portfolio. Furthermore, since the end of 2020 the SNB has excluded securities of companies primarily active in the mining of coal for energy production (cf. chapter 5.3, box 'Non-financial aspects of managing securities of private sector issuers').

Central bank digital currency

Digitalisation in the financial sector and especially innovations in the area of currencies and money are of considerable interest to central banks. Accordingly, the SNB is also dealing intensively with these topics. One such topic is central bank digital currency (CBDC). In the discussion, a distinction is made between wholesale and retail CBDC.

Wholesale CBDC would supplement and further develop the sight deposits that financial institutions already hold at central banks today. Unlike traditional sight deposits, wholesale CBDC could be used in transactions settled on financial market infrastructures based on distributed ledger technology (DLT). The SNB is analysing the feasibility as well as the opportunities and risks of wholesale CBDC in cooperation with the BIS Innovation Hub Swiss Centre within the framework of various projects (cf. chapter 4.2, box 'Experiments with central bank digital currency for financial institutions' as well as chapter 7.2.2, box 'BIS Innovation Hub and projects at its Swiss Centre').

Retail CBDC would be made available to the general public and, as digital central bank money, would complement the physical banknotes issued by the SNB. The SNB's analysis of topics surrounding retail CBDC includes cooperation with six other central banks and the Bank for International Settlements (cf. chapter 7.2.2). A report published by this central bank group in September 2021 emphasised the importance of a careful design of retail CBDC to avoid, for example, increased risks of bank runs. In the event of an introduction, care should also be taken to allow sufficient time for the adaptation of the existing financial system. Furthermore, the report stated that great importance must be attached to the preservation of privacy.

The SNB currently sees no additional benefits from retail CBDC and thus agrees with the Federal Council's assessment in its report on central bank digital currency published in 2019. Switzerland already has a modern and future-proof payment system for retail payments, and this is being continually developed further. However, in view of ongoing digitalisation, the SNB considers it important to continue to participate in the international work on both retail as well as wholesale CBDC.

2

Implementation of monetary policy

2.1 BACKGROUND AND OVERVIEW

Mandate

It is the task of the Swiss National Bank to provide the Swiss franc money market with liquidity (art. 5 para. 2 (a) National Bank Act (NBA)). It implements its monetary policy by steering the interest rate level on the money market. In so doing, it seeks to keep the secured short-term Swiss franc money market rates close to the SNB policy rate. The SNB can influence money market rates by means of its open market operations or adjust the interest rate on sight deposits held by banks and other financial market participants at the SNB. The SNB may also intervene in the foreign exchange market.

SNB policy rate unchanged

The Swiss National Bank implements its monetary policy by setting the SNB policy rate. In so doing, it seeks to keep the short-term Swiss franc money market rates close to the SNB policy rate. The focus in this regard is the interest rate for secured overnight money, the SARON (Swiss Average Rate Overnight). The SNB left its policy rate unchanged at -0.75% in 2021.

Negative interest and foreign exchange market interventions

The SNB implements its monetary policy by charging negative interest on the sight deposits held by banks and other financial market participants at the SNB which exceed a given exemption threshold. In addition, the SNB intervenes in the foreign exchange market as necessary. The negative interest rate remained at -0.75% in 2021 and thus corresponded to the SNB policy rate. In order to contribute to appropriate monetary conditions, the SNB made foreign currency purchases.

Sight deposits at the SNB

The SNB maintains sight deposit accounts for banks and other financial market participants. The balances on these accounts at the SNB are a financial market participant's most liquid assets since they can be used immediately to effect payments and are deemed to be legal tender. Besides their use for payment transactions and as liquidity reserves, domestic banks' sight deposits also count towards satisfying minimum reserve requirements. The SNB influences the level of sight deposits by deploying its monetary policy instruments. In addition to sight deposits held by domestic banks, total sight deposits include sight liabilities towards the Confederation, sight deposits of foreign banks and institutions, as well as other sight liabilities.

The level of sight deposits influences activity on the money market, where liquidity is redistributed between the individual financial market participants. Banks seeking to place funds on a short-term basis provide liquidity in the form of a loan to other banks that require short-term refinancing. These loans can be granted on a secured or unsecured basis. If there is ample liquidity in the financial system, the need for banks to adjust their liquidity positions declines and so too does trading activity on the money market. Negative interest on sight deposits, with exemption thresholds granted, stimulates trading when institutions with sight deposits over and above the exemption threshold conclude money market operations with institutions which have not yet exceeded their threshold.

2.2 DEVELOPMENTS IN THE MONEY AND FOREIGN EXCHANGE MARKETS

Sight deposits held at the SNB totalled CHF 726 billion at the end of 2021 and were thus up slightly year-on-year (2020: CHF 702 billion).

**Slight increase
in sight deposits**

The interest rate of -0.75% charged by the SNB on sight deposits contributed to short-term interest rates in Switzerland remaining low. This helped to reduce the attractiveness of Swiss franc investments and thereby counter upward pressure on the franc.

**Money market rates close
to SNB policy rate**

The relevant money market rates were close to the SNB policy rate in 2021. At the beginning of the year, the SNB selectively provided liquidity via repo transactions in order to counter upward pressure on short-term interest rates on the secured money market (cf. chapter 2.3). Until August, SARON remained largely at around -0.73% . From September, it edged upwards slightly to an average level of -0.71% . The upward pressure was caused by exemption thresholds increasing more strongly than sight deposits in 2021, due to the dynamic calculation model (cf. box 'How negative interest and exemption thresholds work'). This led to a reduction in the liquidity on the Swiss franc money market that was subject to negative interest. At the end of December, the SNB provided liquidity via bilateral repo transactions in order to curb the rise in SARON at the end of the year (cf. chapter 2.3).

**Higher trading activity
on repo market**

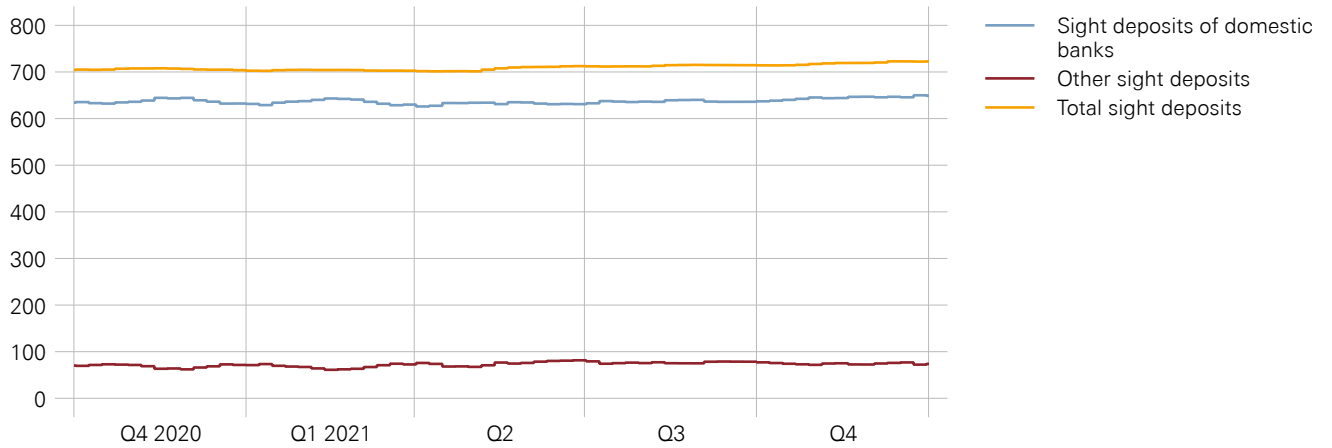
As in previous years, activity on the repo market (interbank market) was shaped by trade in sight deposits between account holders with balances above or below their respective exemption thresholds. Institutions with balances below the exemption threshold increased their sight deposits (e.g. via repo transactions). On the other side of these trades were banks whose sight deposits were above the respective threshold. The liquidity redistribution continued to increase in the year under review. At CHF 14.7 billion, average daily turnover on the repo market was thus higher year-on-year (2020: CHF 13.9 billion). The funds were traded at rates slightly above the SNB's negative interest rate. The number of financial market participants active on the repo market remained virtually unchanged from the previous year.

Replacement of Libor

In 2021, the SNB continued to monitor work on the replacement of Libor (London Interbank Offered Rate) and the transition to robust alternative reference interest rates. At the end of the year, the Swiss franc Libor was discontinued and the changeover of Libor-based contracts to SARON successfully completed. In Switzerland, the reforms were coordinated by the National Working Group on Swiss Franc Reference Rates (cf. box 'Transitioning from Libor to SARON'). Internationally, the reform process was overseen by the Financial Stability Board's Official Sector Steering Group, which in 2021 once again published a report on international reform efforts. The SNB was represented on this body.

SIGHT DEPOSITS AT THE SNB

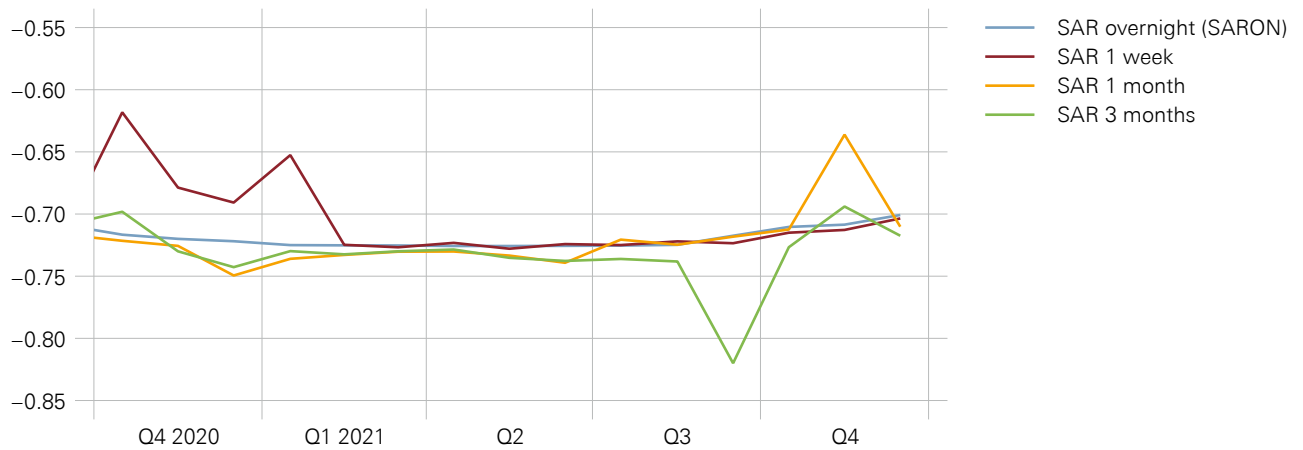
Weekly averages in CHF billions



Source(s): SNB

SWISS FRANC REFERENCE RATES (SWISS AVERAGE RATES, SAR)

Monthly averages of daily figures in percent



Source(s): SIX Swiss Exchange Ltd

Transitioning from Libor to SARON

Once the Libor regulator, the Financial Conduct Authority, had announced in 2017 that it would not support Libor beyond the end of 2021 and that it would no longer oblige banks to participate in the Libor Panel from that point on, there was a major drive at both the international and national level to find a replacement. As expected, at the beginning of March 2021 the administrator of Libor, the Intercontinental Exchange Benchmark Administration, announced its intention to discontinue the Swiss franc Libor at the end of 2021. In order to enable a smooth transition to SARON, the remaining months until the end of 2021 were spent completing the conversion work in the cash, money and capital markets.

In Switzerland, the National Working Group on Swiss Franc Reference Rates (NWG) was the central body managing the transition from the Swiss franc Libor to SARON. The NWG ensures that all the relevant participants are involved and comprises representatives from banks, insurance companies, infrastructure providers, non-financial companies, public institutions and interest groups. The SNB supports the NWG's work, though its primary role is to coordinate. It also provides information on the NWG's activities on its website.

In 2017, the NWG recommended SARON as an alternative to the Swiss franc Libor. SARON, which has been calculated since 2009, is a secured overnight rate based on the most liquid segment of the Swiss franc money market. It has already gained in importance as a reference interest rate in recent years. In 2017, a SARON-based yield curve was created which is derived from corresponding swap transactions. The liquidity of the SARON-based yield curve improved significantly in 2021. The share of SARON swaps in the overall turnover on the Swiss franc interest rate swap market increased and exceeded that of Libor swaps from mid-year onwards. In particular, SARON swaps with longer maturities were also increasingly concluded.

SARON continued to establish itself as a reference rate on the cash market, too. The replacement of the Swiss franc Libor on the cash market began as early as 2019 with the first SARON-based cash products. In 2021, further progress was made in the transition to SARON, with all major banks in domestic lending business now offering SARON-based cash products in their product range. From June, banks were exclusively using SARON as the reference rate for new variable-rate contracts.

Thus SARON established itself as the central reference interest rate on the Swiss financial market. Market participants spent the year switching existing contracts based on the Swiss franc Libor to SARON-based products. With the discontinuation of the Swiss franc Libor at the end of the year, the transition to SARON was completed for the market as a whole. The NWG will therefore disband in accordance with its statutes in March 2022.

The SNB requires that the banks and other financial market participants with whom it conducts credit transactions provide sufficient collateral (art. 9 NBA). In so doing, the SNB protects itself against losses and ensures equal treatment of its counterparties.

Principles of collateral policy

The ‘Guidelines of the Swiss National Bank on monetary policy instruments’ outline the types of securities that are eligible as collateral for SNB transactions. The ‘Instruction sheet on collateral eligible for SNB repos’ details the criteria which securities must meet in order to be eligible as collateral in repo transactions with the SNB. Only securities included in the ‘List of collateral eligible for SNB repos’ are accepted. Since the SNB also admits foreign banks to its monetary policy operations and since the portfolio of Swiss franc securities is limited, it also accepts securities in foreign currencies.

The SNB sets high minimum requirements with regard to the marketability and credit rating of securities. This prompts banks to hold recoverable and liquid assets. In turn, this is essential if banks are to be able to refinance their operations on the money market even under difficult conditions.

As announced on 17 December 2020, all Libor-based floating-rate notes in all currencies were excluded from the list of collateral eligible for SNB repos as of end-2021. This step supports market participants in the transition to new and more robust reference rates, and reduces potential risks associated with the discontinuation of Libor.

Adjustments to eligibility of collateral for repos

Higher volume of collateral eligible for SNB repos

Translated into Swiss francs, the volume of collateral eligible for SNB repos at the end of 2021 totalled CHF 11,230 billion, up around CHF 460 billion year-on-year. This is principally due to an increase in issuance activity compared with 2020.

Swiss Foreign Exchange Committee and FX Global Code

The Swiss Foreign Exchange Committee (Swiss FXC) was set up in 2018 and serves as a discussion forum for banks and other foreign exchange market participants in Switzerland and the Principality of Liechtenstein. It is also a member of the Global Foreign Exchange Committee (GFXC), which promotes, maintains and updates the principles of the FX Global Code. The FX Global Code was introduced in 2017 to establish a common set of guidelines to promote the integrity and efficiency of foreign exchange trading. In December 2021, the SNB assumed the chairmanship of the GFXC for a two-year term. The SNB is also a member of the Swiss FXC and co-chairs the committee along with a representative from the private sector. Every two years, some of the members step down in order to give other interested market participants an opportunity to play their part in the committee.

In 2021, the Swiss FXC addressed the matters to be discussed in the GFXC. The focus was on the outcome of the first review of the FX Global Code principles. In July the GFXC published its updated version of the FX Global Code. This is aimed at greater transparency in a number of areas, particularly in electronic and algorithmic trading. With regard to settlement risk, the Code now places greater emphasis on the use of payment-versus-payment mechanisms. The Swiss FXC also discussed relevant market developments and structural changes.

2.3 USE OF MONETARY POLICY INSTRUMENTS

Foreign exchange transactions

In order to fulfil its monetary policy mandate, the SNB may purchase and sell foreign currency against Swiss francs on the financial markets. Foreign exchange transactions conducted by the SNB are usually spot or swap transactions. In a foreign exchange swap, the purchase (sale) of foreign currency at the current spot rate and the sale (purchase) of the foreign currency at a later date are simultaneously agreed. The SNB concludes foreign exchange transactions with a wide range of domestic and foreign counterparties.

In 2021, the SNB continued to intervene in the foreign exchange market as necessary in order to contribute to appropriate monetary conditions, purchasing a total of CHF 21.1 billion in foreign currency over the course of the year (2020: CHF 109.7 billion). As in 2020, the SNB did not conclude any foreign exchange swaps for the purposes of influencing conditions on the Swiss franc money market.

The SNB charges interest of -0.75% on sight deposits held by banks and other financial market participants at the SNB. By setting the interest rate and defining other conditions, the SNB influences the interest rate level on the money market. To achieve this, it is sufficient if only a portion of sight deposits are subject to negative interest. In order to limit the negative interest burden to the minimum necessary, the SNB grants exemption thresholds.

Interest rate on sight deposits
at SNB

The additional liquidity created via foreign exchange market interventions and other monetary policy instruments in 2021 increased the volume of sight deposits subject to negative interest at the SNB. In addition, the dynamic calculation of exemption thresholds introduced in November 2019 led to a steady increase in the thresholds. As the burden-reducing effect of the higher exemption thresholds preponderated, negative interest income in 2021 decreased to CHF 1.3 billion (2020: CHF 1.4 billion).

At the end of December 2021, the sight deposits of institutions required to pay negative interest stood at CHF 713 billion, above the total exempted deposits of CHF 573 billion. At the end of December, balances of CHF 174 billion (24% of the sight deposits of institutions required to pay negative interest) were subject to negative interest, compared to CHF 221 billion (32% of the sight deposits of institutions required to pay negative interest) the previous year. At the end of 2021, 94% of exemption thresholds had been exhausted.

Repo transactions

In the case of liquidity-providing repo transactions, the SNB purchases securities from a bank (or other financial institution admitted to the repo market) and credits the corresponding sum in Swiss francs to the counterparty's sight deposit account with the SNB. At the same time, it is agreed that the SNB will resell securities of the same type and quantity at a later date. In the case of a liquidity-absorbing repo, the transactions are conducted in the opposite direction. For the term of the repo agreement, the cash taker generally pays interest (the repo rate) to the cash provider. Repo transactions can be conducted by way of auction or on a bilateral basis with a wide range of counterparties.

At the beginning of the year, the SNB conducted repo auctions with a total allotment of CHF 800 million in order to counter the upward pressure on secured short-term money market rates. From February to December, no liquidity-providing or liquidity-absorbing money market operations were carried out. In order to limit the upward pressure on SARON at the end of the year, the SNB conducted bilateral repo transactions for CHF 3.5 billion in December.

Monetary policy instruments

The framework within which the SNB may conduct transactions on the financial market is defined in art. 9 NBA. The 'Guidelines of the Swiss National Bank on monetary policy instruments' describe the instruments and procedures which the SNB uses to implement its monetary policy. These guidelines are supplemented by instruction sheets for the SNB's counterparties. As lender of last resort, the SNB also provides emergency liquidity assistance under certain conditions.

Within its set of monetary policy instruments, the SNB distinguishes between open market operations and standing facilities. In the case of open market operations, the SNB takes the initiative in the transaction. Where standing facilities (i.e. the liquidity-shortage financing facility and the intraday facility) are concerned, it merely sets the conditions under which counterparties can obtain liquidity.

Open market operations include repo transactions, the issuance, purchase and sale of its own debt certificates (SNB Bills), as well as foreign exchange transactions. The SNB can carry out open market operations in the form of auctions or bilateral transactions. Transactions on the money market are mostly conducted via an electronic trading platform.

In principle, all banks domiciled in Switzerland and the Principality of Liechtenstein are admissible as counterparties in monetary policy operations. Other domestic financial market participants such as insurance companies, as well as foreign banks, may be admitted, provided there is a monetary policy interest in doing so and they contribute to liquidity on the secured Swiss franc money market.

One of the SNB's monetary policy instruments is the interest rate on sight deposit accounts. Art. 9 NBA authorises the SNB to maintain interest-bearing and non-interest-bearing accounts for banks and other financial market participants. Until January 2015, when the SNB charged negative interest for the first time, the sight deposit accounts were non-interest-bearing.

Furthermore, since 2020 the SNB's monetary policy instruments have included the SNB COVID-19 refinancing facility (CRF). Pursuant to art. 9 NBA, the SNB is authorised to enter into credit transactions with banks and other financial market participants on condition that sufficient collateral is provided for the loans.

The issuance of its own debt certificates in Swiss francs (SNB Bills) allows the SNB to absorb liquidity. It can repurchase SNB Bills via the secondary market in order to increase the supply of liquidity to the financial system where necessary.

SNB debt certificates

In 2021 as in the previous year, no SNB Bills were issued or repurchased for monetary policy purposes.

How negative interest and exemption thresholds work

In order for negative interest to have an impact on financial market rates and – as desired from a monetary policy perspective – thus make the Swiss franc less attractive, it is sufficient if only a portion of sight deposits are subject to negative interest. The SNB therefore grants exemption thresholds when calculating negative interest on sight deposits held by banks and other financial market participants. This aims to ensure that the burden imposed on the banking system is kept to the minimum required for monetary policy reasons.

The minimum reserve requirement is the key variable for calculating the exemption threshold for domestic banks (cf. chapter 2.4). When it announced the negative interest rate in December 2014, the SNB set the exemption threshold at 20 times (threshold factor) the minimum reserve requirement. In 2019, it increased the threshold factor from 20 to 25 and adjusted the calculation method as of 1 November. The aim was to reduce the burden on the banking system to the minimum required for the transmission of the negative interest rate to the money market. At its monetary policy assessment in March 2020, the SNB raised the threshold factor from 25 to 30 as of 1 April 2020 to increase the banks' latitude for lending during the coronavirus crisis.

The calculation of the exemption threshold is currently based on the following rules: For banks subject to minimum reserve requirements, the exemption threshold is calculated by multiplying the moving average of the minimum reserve requirements over the preceding 36 reference periods by the applicable threshold factor (basis component), minus the cash holdings in the last reference period (cash holdings component). Before the adjustment in 2019, the exemption threshold was calculated on the basis of the November 2014 reference period. For account holders not subject to any minimum reserve requirements, for example foreign banks and other domestic or foreign financial market participants, the exemption threshold is at least CHF 10 million.

The level of minimum reserves is calculated for each bank according to its short-term liabilities towards third parties in Swiss francs by using a uniform method. Banks holding higher sight deposits in proportion to their minimum reserves are charged more than other banks. The dynamic calculation of the basis component recognises developments in banks' balance sheets over time. By increasing the threshold factor twice, the SNB also took account of the additional liquidity provision to the banking system. The SNB regularly reviews the calculation of the exemption threshold.

Negative interest is applied across the board, with as few exceptions as possible. This respects the principle of equal treatment and increases the monetary policy effectiveness of the instrument. The only sight deposit accounts exempted from negative interest are those of the central Federal Administration and the compensation funds for old age and survivors' insurance, disability insurance and the fund for loss of earned income (compenswiss); the SNB monitors the development of the balances on these accounts.

Since 26 March 2020, banks have been able to obtain liquidity against collateral and at the SNB policy rate of -0.75% via the SNB COVID-19 refinancing facility (CRF). As collateral the SNB accepts credit claims in respect of loans guaranteed by the federal government under the COVID-19 ordinance on joint and several guarantees. It also accepts claims secured by loan guarantees or credit default guarantees offered by cantons, provided these have been granted in order to cushion the economic impact of the pandemic. Claims in respect of loans secured by joint and several guarantees provided for startups by the federal government in cooperation with the cantons are also deemed by the SNB to be eligible collateral, as are other claims in respect of loans guaranteed by the federal government.

SNB COVID-19 refinancing facility

After heavy drawdown in 2020, use of the CRF in 2021 declined from CHF 11.2 billion in January to CHF 9.2 billion at the end of December.

During the day, the SNB provides its counterparties with interest-free liquidity (intraday facility) through repo transactions so as to facilitate the settlement of payment transactions via the Swiss Interbank Clearing (SIC) system and the settlement of foreign exchange transactions via Continuous Linked Settlement, the multilateral foreign exchange settlement system. The funds received must be repaid by the end of the same bank working day at the latest.

Intraday facility

Average utilisation of the intraday facility amounted to CHF 0.1 billion in 2021 (2020: CHF 1.1 billion).

To bridge unexpected liquidity bottlenecks, the SNB offers a liquidity-shortage financing facility. For this purpose, it grants its counterparties a limit which must be covered at all times by at least 110% collateral eligible for SNB repos. Counterparties can obtain liquidity up to the limit granted until the following bank working day. The liquidity-shortage financing facility is granted in the form of a special-rate repo transaction. The special rate corresponds to the SNB policy rate plus a surcharge of 0.5 percentage points, but is always at least 0%.

Liquidity-shortage financing facility

The liquidity-shortage financing facility was hardly used; averaged over the year, volume was close to zero, as in 2020. The limits for the liquidity-shortage financing facility amounted to CHF 36.3 billion. At the end of the year, 73 financial market participants held corresponding limits.

In 2020, an adapted form of the liquidity-shortage financing facility was established for systemically important financial market infrastructures domiciled in Switzerland. The 'Guidelines of the Swiss National Bank on monetary policy instruments' were amended accordingly in the year under review.

2.4 MINIMUM RESERVES

Main features of regulation

The duty to hold minimum reserves (arts. 17, 18 and 22 NBA) ensures that banks have a minimum demand for base money and thus fulfils a monetary policy objective. Eligible assets in Swiss francs comprise coins in circulation, banknotes and sight deposits held at the SNB. The minimum reserve requirement amounts to 2.5% of the relevant short-term liabilities, which are calculated as the sum of short-term liabilities in Swiss francs (up to 90 days) plus 20% of liabilities towards customers in the form of savings and investments. The National Bank Ordinance (NBO) sets out in detail which balance sheet positions are subject to minimum reserve requirements. The relevant figure for the minimum reserve requirement is taken to be the average for the respective reporting period, which lasts from the 20th day of one month to the 19th day of the following month. It is calculated as the average of the last three month-end values of the relevant liabilities.

The minimum reserves have formed the basis for calculating the exemption thresholds for domestic banks since the negative interest rate was introduced in January 2015.

If a bank fails to fulfil the minimum reserve requirement, it is obliged to pay the SNB interest on the shortfall for the number of days of the reporting period during which the minimum reserve requirement was not observed. The interest rate is 4 percentage points higher than SARON over the reporting period in question.

MINIMUM RESERVES

In CHF millions

	2021 Outstanding Average	2020 Outstanding Average
Sight deposits at the SNB	636 739	585 413
Banknotes	5 867	6 286
Coins in circulation	98	105
Eligible assets	642 703	591 804
Requirement	21 804	19 209
Compliance in excess of requirement	620 899	572 595
Compliance in percent	2 948	3 080

In 2021 (between 20 December 2020 and 19 December 2021), statutory minimum reserves averaged CHF 21.8 billion. This is a 14% increase year-on-year. Eligible assets rose to CHF 642.7 billion on average, compared with CHF 591.8 billion the previous year. Banks thus exceeded the requirement by an annual average of CHF 620.9 billion. The statutory minimum reserve requirement was met by all 224 banks.

2.5 LIQUIDITY IN FOREIGN CURRENCIES

Since 2013, standing bilateral liquidity swap arrangements have been in place between the SNB and the Bank of Canada, the Bank of England, the Bank of Japan, the European Central Bank and the US Federal Reserve. This permanent network of swap arrangements allows the participating central banks, where necessary, to provide banks in their jurisdiction with liquidity in any of the relevant currencies, thus serving as a liquidity backstop.

Permanent network
of swap arrangements

Strong decline in demand for US dollar liquidity

In view of the sustained improvement in US dollar funding conditions and low demand at US dollar liquidity-providing operations, the SNB, together with the Bank of England, the Bank of Japan and the ECB, and in consultation with the Federal Reserve, announced on 23 April 2021 that they would discontinue offering dollar liquidity at the 84-day maturity from 1 July 2021. Up until July, the SNB was offering repo transactions in US dollars with maturities of 7 and 84 days on a weekly basis.

Since July 2021, with the exception of one test purchase, there has been no demand for weekly US dollar liquidity operations with a 7-day maturity. In December, a liquidity operation in US dollars with a 14-day maturity was offered over the year-end, with an allotment of USD 2.4 billion.

Outstanding volume from demand at the SNB's US dollar auctions peaked at the beginning of January 2021 with approximately USD 10.0 billion.

There was no requirement for liquidity in other foreign currencies or in Swiss francs within the framework of these bilateral swap arrangements.

Further swap arrangements

The SNB has further bilateral and temporary swap arrangements with the National Bank of Poland, the People's Bank of China and the Bank of Korea in place since 2012, 2014 and 2018, respectively.

2.6 EMERGENCY LIQUIDITY ASSISTANCE

SNB as lender of last resort

The SNB can act as lender of last resort. Within the context of this emergency liquidity assistance, the SNB can provide liquidity to domestic banks if they are no longer able to obtain sufficient liquidity on the market.

Conditions

Certain conditions apply in order for emergency liquidity assistance to be granted. The bank or group of banks requesting credit must be important for the stability of the financial system and solvent. Furthermore, the liquidity assistance must be fully covered by sufficient collateral at all times. The SNB determines which types of collateral it will accept in return for liquidity assistance. To assess the solvency of a bank or group of banks, the SNB obtains an opinion from the Swiss Financial Market Supervisory Authority (FINMA).

3

Ensuring the supply and distribution of cash

3.1 BACKGROUND

The Swiss National Bank is entrusted with the note-issuing privilege. Pursuant to art. 5 para. 2 (b) of the National Bank Act, it is responsible for ensuring the supply and distribution of cash (banknotes and coins) in Switzerland. It works to ensure an efficient and secure payment system with cash. The SNB is also charged by the Confederation with the task of putting coins into circulation.

Mandate

Banknotes and coins are supplied to the economy via the two cashier's offices at the Berne and Zurich head offices, as well as 13 agencies operated by cantonal banks on behalf of the SNB. The SNB issues banknotes and coins commensurate with demand for payment purposes, offsets seasonal fluctuations and withdraws banknotes and coins no longer fit for circulation. Local distribution and redemption of banknotes and coins are performed by commercial banks, Swiss Post and cash processing operators.

Role of SNB

3.2 CASHIER'S OFFICES, AGENCIES AND CASH DEPOSIT FACILITIES

In 2021, the turnover (incoming and outgoing) of the cashier's offices in Berne and Zurich amounted to CHF 71.0 billion (2020: CHF 72.9 billion). They received a total of 268.7 million banknotes (2020: 276.1 million) and 187.6 million coins (2020: 260.2 million). The SNB examined the quantity, quality and authenticity of the incoming notes and coins. The incoming banknotes and coins were offset by an outflow of 279.0 million banknotes (2020: 297.5 million) and 215.2 million coins (2020: 268.5 million).

Turnover at cashier's offices

The agencies assist the SNB's cashier's offices in the distribution and redemption of cash. They play an important role in ensuring the regional supply and distribution of cash by providing cash withdrawal services to third-party banks (local institutions or branches of larger banking groups), as well as to the branches of the cantonal banks hosting each agency.

Turnover at agencies

The agencies' turnover (incoming and outgoing) amounted to CHF 10.1 billion (2020: CHF 10.0 billion). This constitutes 14.2% of the turnover at the SNB's cashier's offices (2020: 13.7%).

Cash distribution services The SNB's main partners with respect to cash distribution services are commercial banks, Swiss Post and cash processing operators. They conduct their cash handling activities at separate locations around the country. To ensure the supply of cash in Switzerland at all times, the SNB operates cash distribution centres at the head offices in Zurich and Berne and issues regulations on the manner, place and time for the receipt and delivery of banknotes and coins. Its activities in this field are based on the Federal Act on Currency and Payment Instruments (CPIA).

Cash deposit facilities Cash processing operators can apply for cash deposit facilities with the SNB. These storage facilities contain stocks of notes and coins. The SNB sets up the facilities with third parties, while retaining ownership. The cash processing operators deposit surplus cash and withdraw it as required. The corresponding bookings are made to their sight deposit accounts at the SNB. Cash deposit facilities reduce the amount of incoming and outgoing cash at the SNB, as well as the number of transports made by the operators of cash deposit facilities, which makes for a more efficient supply and distribution of cash.

3.3 BANKNOTES

Mandate Pursuant to art. 7 CPIA, the SNB issues banknotes commensurate with the demand for payment transactions and takes back any banknotes which are worn, damaged or surplus to requirements due to seasonal fluctuations. It also determines the denomination and design of the notes. Particular attention is paid to banknote security.

Banknotes in circulation In 2021, banknotes in circulation averaged CHF 88.3 billion, 4.5% above the 2020 level. The total number of notes in circulation averaged 532.0 million, which was 3.6% higher than in 2020.

Impact of coronavirus crisis Stronger demand for the larger denominations as a store of value – a typical feature in periods of crisis – continued during the second year of the coronavirus pandemic. By contrast, weaker than usual demand for the smaller denominations and for coins was registered once again while containment measures were in place. While the demand for cash as a means of payment rose again over the course of the year, it remained below its pre-crisis level. The surveys on the use of payment methods (cf. box 'Results of the 2020 survey on payment methods and 2021 survey of Swiss companies') showed that the use of cash has been declining for some time, independently of the effects of the coronavirus pandemic, and is related to changes in the payment behaviour of the population.

In June, the SNB published the results of the survey on the use of the different payment methods in Switzerland, which it conducted for the second time in 2020 (cf. box ‘Results of the 2020 survey on payment methods and 2021 survey of Swiss companies’). For the payment methods survey, the payment behaviour and cash usage of 2,000 randomly selected Swiss residents were surveyed with a questionnaire and a payment diary.

Second survey of households on use of payment methods

In 2021, the SNB carried out a representative survey on the use of payment methods by Swiss companies for the first time (cf. box ‘Results of the 2020 survey on payment methods and 2021 survey of Swiss companies’). The Business and Enterprise Register (BER) used by the Swiss Federal Statistical Office (SFSO), which contains all enterprises and businesses in private and public law in Switzerland, served as the basis. Overall, approximately 2,200 interviews were conducted. The information provided by the surveyed companies sheds light on their payment method use and is thus the counterpart to the payment methods survey of private individuals. In this combination, the results allow the SNB to gain a better insight into the changes underway. The survey results were published in February 2022.

First survey of Swiss companies on payment methods

In addition, the SNB conducted a supplementary survey on cash transactions at ATMs. The data enable the SNB to promptly evaluate the development of cash usage, provide important indications of short-term changes and create foundations for further analysis. The supplementary surveys and the evaluations of the data make it easier for the SNB to fulfil its statutory mandate with respect to the supply and distribution of cash.

Supplementary survey on cash transactions at ATMs

In 2021, the SNB put 64.5 million freshly printed banknotes (2020: 86.8 million) with a nominal value of CHF 14.5 billion (2020: CHF 15.0 billion) into circulation. It destroyed 79.5 million damaged or recalled notes (2020: 129.4 million) with a nominal value of CHF 22.9 billion (2020: CHF 56.8 billion). The decrease in new banknotes put into circulation and banknotes destroyed shows that large proportions of the recalled eighth banknote series notes have already been replaced. This process is continuing.

Issuance and disposal

Counterfeits

In 2021, 2,493 counterfeit banknotes (2020: 1,692) were confiscated in Switzerland. This corresponds to 5 (2020: 3) counterfeit notes per million Swiss franc notes in circulation – a very low figure by international standards.

Recall and exchange of sixth-series banknotes

The sixth-series banknotes were recalled in May 2000 and have not been legal tender since. In accordance with a revision to the CPIA which came into effect on 1 January 2020, there is no limitation on the period during which these banknotes can be exchanged at the SNB and the SNB agencies at full nominal value. At the end of 2021, a total of 17.5 million notes (equivalent to CHF 1.0 billion) from the sixth series had still not been exchanged.

Recall and exchange of eighth-series banknotes

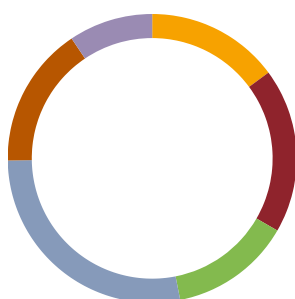
The SNB recalled the banknotes from the eighth series with effect from 30 April 2021. The banknotes thereby lost their status as legal tender. They can, however, be exchanged at the SNB and the SNB agencies for an unlimited period at their full nominal value. After the recall was announced, there was significantly higher customer traffic at the SNB's counters. At the end of 2021, a total of 105.5 million notes (equivalent to CHF 21.3 billion) from the eighth series had still not been exchanged.

KEY FIGURES ON BANKNOTES AND COINS IN CIRCULATION (ANNUAL AVERAGE)

	2017	2018	2019	2020	2021
Banknotes in circulation					
In value terms (in CHF millions)	76 471	78 997	79 809	84 450	88 281
Year-on-year change (in percent)	5.9	3.3	1.0	5.8	4.6
Number of notes (in thousands)	449 221	471 276	488 060	513 381	531 983
Year-on-year change (in percent)	5.5	4.9	3.6	5.2	3.6
Coins in circulation					
In value terms (in CHF millions)	3 102	3 144	3 180	3 189	3 182
Year-on-year change (in percent)	1.3	1.3	1.2	0.3	-0.2
Number of coins (in millions)	5 527	5 617	5 693	5 737	5 745
Year-on-year change (in percent)	1.6	1.6	1.3	0.8	0.1

NUMBER OF BANKNOTES IN CIRCULATION

In millions



10s	79
20s	98
50s	72
100s	148
200s	84
1000s	50

Annual average for 2021

3.4 COINS

The SNB is entrusted by the Confederation with the task of coin circulation. Its role is defined in art. 5 CPIA. It takes over the coins minted by Swissmint and puts into circulation the number required for payment purposes. Coins that are surplus to requirements are taken back against reimbursement of their nominal value. The SNB's coinage services are not remunerated, as they constitute part of its mandate to supply the country with cash. The SNB is supported in this task by Swiss Post and Swiss Federal Railways in accordance with the Coinage Ordinance.

Mandate

On 1 March 2021, the revision to the Coinage Ordinance adopted by the Federal Council came into force. The new provisions draw a distinction between coins worn as a result of normal use and coins that have been damaged by other processes or uses. This concerns coins seriously damaged at metal processing plants (recycling) in particular. Worn coins will continue to be accepted by the SNB without restriction and exchanged at their full nominal value. Damaged coins will only be accepted and reimbursed subject to certain conditions being met. The SNB, in collaboration with the relevant federal government bodies, has published provisions governing the details.

Revision to Coinage Ordinance

In 2021, the value of coins in circulation averaged CHF 3.2 billion. This corresponds to 5.7 billion coins (2020: 5.7 billion). The overall change compared to the previous year was small. While the value of coins in circulation decreased by 0.2% compared to the previous year, their number grew by 0.1%.

Coin circulation

Results of the 2020 survey on payment methods and 2021 survey of Swiss companies

In autumn 2020, the SNB conducted a payment methods survey of private individuals for the second time (cf. accountability report for 2020, chapter 3). The results of the survey were published in June 2021. In addition, the SNB launched a survey on payment methods of Swiss companies for the first time in summer 2021. The results of the survey of Swiss companies were published in February 2022. The two surveys enable the SNB to follow developments in the use and acceptance of payment methods, thereby making an important contribution to the fulfilment of the SNB's statutory mandate in the area of payment transactions.

The survey of private individuals shows that, in terms of the number of non-recurring payments, cash continues to be the payment instrument most frequently used by the Swiss population. Compared with 2017, however, its importance has declined. By contrast, non-cash payment methods, such as the debit card, are being used significantly more often. While 70% of payments were still being settled in cash in 2017, in 2020, this share was 43%. Meanwhile, the corresponding shares for debit and credit card payments rose to 33% (2017: 22%) and 13% (2017: 5%) respectively. At the same time the value share for cash payments decreased to 24% (2017: 45%). These changes underline the fact that the population is increasingly making use of innovations in the field of non-cash payment methods (contactless function for debit and credit cards, mobile payment apps). In terms of ease of use and speed, the debit card now has a better ranking than cash. The coronavirus pandemic has accelerated the shift from cash to non-cash payment methods. One-third of respondents stated that they are making increased use of card payments as a result of the pandemic. Additionally, the 2020 survey demonstrates clearly that the various payment instruments complement one another well. Thanks in part to the broad availability of a range of means of payment, the Swiss population continues to feel scarcely any restrictions in its choice of payment method.

The survey of Swiss companies showed that customer preference plays a key role in determining which payment methods are accepted by companies. Overall, 83% of all companies accept payment against invoice, 68% payment by transfer and 60% payment in cash. A payment method's acceptance is therefore influenced to a large extent by the customers themselves. On the expenses side, transaction speed and supplier preference are the principal factors influencing the choice of payment method at companies. For non-recurring payments, 79% of companies opt for transfers, 61% for payment against invoice, 40% for credit card settlement and 35% for cash. The pandemic has changed little in this regard.

The results suggest that changes in customer needs are likely to also lead to changes in the acceptance of payment methods by companies. Where cash is concerned, acceptance can additionally be influenced by the available cash infrastructure. The surveyed companies most frequently obtain their cash supplies from banks. Companies could scale back their use of cash if, for instance, financial service providers were to downsize their infrastructure due to the declining use of cash by the population. The survey shows a strong correlation between the use and acceptance of cash.

4

Facilitating and securing cashless payments

4.1 BACKGROUND

Mandate	In accordance with art. 5 para. 2 (c) of the National Bank Act (NBA), the Swiss National Bank facilitates and secures the operation of cashless payment systems. Art. 9 of the NBA empowers the SNB to maintain sight deposit accounts for banks and other financial market participants.
Role in cashless payment transactions	The SNB fulfils its statutory mandate of facilitating and securing the operation of cashless payment systems in its role as commissioning party and system manager of the Swiss Interbank Clearing (SIC) payment system. The SIC system is the central payment system for payments in Swiss francs. The SNB determines the admission criteria, provides the system with liquidity and defines the functionalities and settlement rules, thus ensuring a sound and efficient infrastructure for cashless payment transactions. As a systemically important financial market infrastructure (FMI), the SIC system is overseen by the SNB (cf. chapter 6.4).
Main features of SIC system	The SIC system is a real-time gross settlement system for payments in Swiss francs. This means that payment orders are settled continuously, individually, irrevocably and with finality in central bank money. Via the SIC system, banks and other financial market participants settle both interbank payments (payments between financial institutions as well as third-party system payments) and retail payments in Swiss francs. Retail payments are mainly initiated by payment instruments such as bank transfers, direct debits or eBills. Likewise, some obligations arising from card payments are bundled and then settled among participants via the SIC system.
Operation of SIC system	At the beginning of each settlement day, the SNB transfers deposits from the SIC participants' sight deposit accounts to their settlement accounts in the SIC system. During the day, it ensures that there is sufficient liquidity in the SIC system by granting, when necessary, intraday loans to banks against collateral (cf. chapter 2.3). At the end of a settlement day, it calculates, on the basis of the turnover of the individual SIC participants, the balance to be transferred from the settlement accounts back to the sight deposit accounts at the SNB. Legally, the two accounts form one unit.

The SNB has entrusted the operation of the SIC system to SIX Interbank Clearing Ltd, a subsidiary of SIX Group Ltd (SIX). The provision of services for the SIC system is governed by contract between the SNB and SIX Interbank Clearing Ltd. Furthermore, the SNB has a seat on the Board of Directors of SIX Interbank Clearing Ltd and participates in various payment system bodies, where it represents its interests based on its mandate. The business relationship between the SNB and the SIC participants is governed by the SIC giro agreement.

The SNB grants domestic financial market participants access to the SIC system. They include banks, securities firms, insurance companies and other institutions such as companies with a fintech licence, cash processing operators and FMIs. Third-party system operators which are able to effect debits and credits to the accounts of other participants also have access to the SIC system. The SNB may grant foreign financial market participants access to the SIC system too. The principle of admission is that participants must make a significant contribution to the fulfilment of the SNB's tasks, without introducing any major risks.

The SIC system is a key element of the Swiss financial centre. The financial market infrastructure is operated by SIX, a company owned by around 120 financial institutions which are also the main users of the services provided by SIX. A well-functioning, secure and efficient financial market infrastructure is of vital importance to the SNB for the fulfilment of its statutory mandate, particularly with regard to facilitating and securing the operation of cashless payment systems. The SNB regularly exchanges information with SIX and the banking sector with the aim of continually developing Switzerland's financial market infrastructure.

4.2 THE SIC SYSTEM IN 2021

In 2021, a daily average of approximately 3.5 million transactions amounting to CHF 163 billion were settled via the SIC system. Compared to the previous year, the average number of transactions settled per day rose by 21.7% while turnover decreased by 8.4%. The average value per transaction decreased by 24.7% to around CHF 47,000. Peak days saw up to 9.9 million transactions, with turnover of up to CHF 247 billion. Both the rise in the number of transactions and the reduction in average value per transaction can be explained with the integration of PostFinance's retail payments (customer payments) into the SIC system, which was concluded in 2021. The decline in turnover is attributable to a lower level of activity in interbank payment transactions.

Admission to SIC system

SIC system as part of Swiss financial market infrastructure

Key figures

Retail payments accounted for 98% of the transactions in the SIC system (11.7% of turnover) and interbank payments 2% (88.3% of turnover).

KEY FIGURES ON SIC SYSTEM

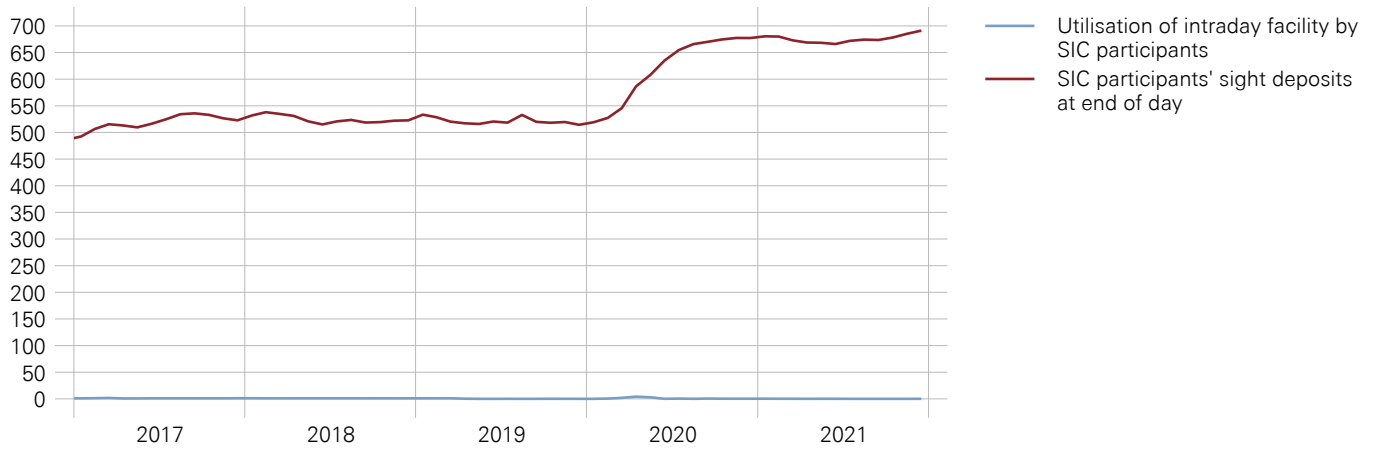
	2017	2018	2019	2020	2021
Number of transactions					
Daily average (in thousands)	2 035	2 432	2 623	2 867	3 490
Peak daily value for year (in thousands)	7 025	7 436	7 484	9 286	9 909
Share of interbank payments (in %)	3.2	2.6	2.4	2.5	1.9
Share of retail payments (in %)	96.8	97.4	97.6	97.5	98.1
Turnover					
Daily average (in CHF billions)	173	156	158	178	163
Peak daily value for year (in CHF billions)	227	249	240	276	247
Average value per transaction (in CHF)	84 941	64 081	60 256	62 160	46 797
Share of interbank payments (in %)	91.1	89.2	88.6	89.7	88.3
Share of retail payments (in %)	8.9	10.8	11.4	10.3	11.7
Sight deposits of SIC participants and intraday facility					
Average sight deposits at end of day (in CHF millions)	519 433	524 801	521 595	621 458	676 024
Average intraday facility utilisation (in CHF millions)	1 086	1 061	416	1 111	134

Participants in SIC system

As at 31 December 2021, the SNB had 390 holders of sight deposit accounts (2020: 394). Of these, 319 participated in the SIC system (2020: 321). The majority of SIC participants (241) are domiciled in Switzerland (2020: 238). Six third-party system operators also have access to the SIC system.

SIGHT DEPOSITS AND INTRADAY FACILITY IN SIC SYSTEM

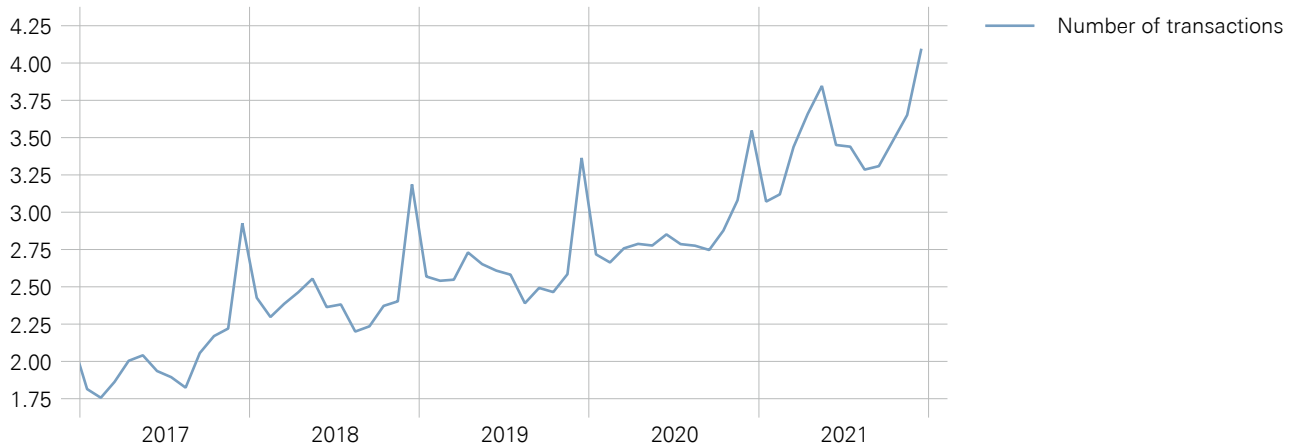
Monthly averages of daily values, in CHF billions



Source(s): SNB

TRANSACTIONS IN SIC SYSTEM

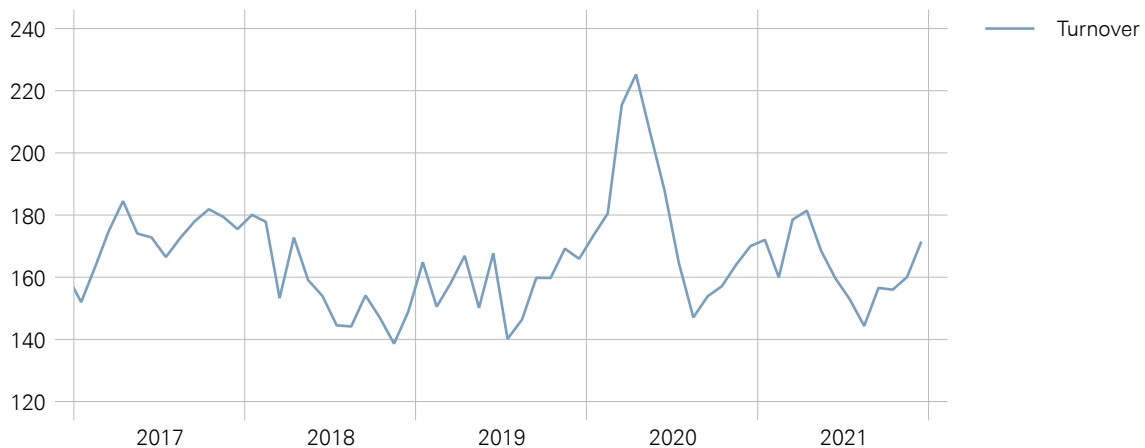
Monthly averages of daily values, transactions in millions



Source(s): SNB

TURNOVER IN SIC SYSTEM

Monthly averages of daily values, in CHF billions



Source(s): SNB

SIC5 and instant payments

In 2021, the SNB and SIX Interbank Clearing Ltd continued work on the SIC5 project initiated in 2020 to further develop the SIC system. Among other things, SIC5 allows the settlement of instant payments, i.e. cashless retail payments that are processed around the clock with the amount being made available for use by the final recipient within seconds. The new SIC5 platform is expected to be launched at the end of 2023 and will initially settle instant payments. Other payment methods in the SIC system, e.g. interbank payments, will subsequently be migrated to the new platform and will also be able to benefit from the enhancements. The SIC5 project is being developed in close collaboration with the SIC participants. The SNB attaches great importance to the implementation of instant payments in the SIC system. With the SIC5 project, the SIC system will be strategically and technically enhanced over the long term, taking the changes in payment transactions into account. In accordance with its task to facilitate and secure the operation of cashless payment systems, the SNB is thus creating the framework at infrastructure level for sustainable and account-based cashless payment transactions which are secure, efficient and fast.

As the commissioning party and system manager of the SIC system, in March 2021 the SNB decided – after consultation with the SIC participants – to make the acceptance of instant payments a compulsory requirement. This was also a concern of the Board of Directors of SIX Interbank Clearing Ltd. This requirement is compulsory for all SIC participants active in retail payment transactions and will initially be introduced for the largest financial institutions in retail payment transactions from mid-2024.

In 2019, the SNB and SIX jointly launched a project to develop a secure network for the Swiss financial centre (Secure Swiss Finance Network, SSFN). The aim of this project is to increase the security and resilience of network connections to the SIC system and to other FMIs. In collaboration with telecommunications providers and participants, a new, secure network on the basis of SCION (Scalability, Control and Isolation on Next-Generation Networks), the routing architecture developed at ETH Zurich, will be set up. The new SCION network not only allows for the exchange of messages between FMIs and participants, but it also enables data to be exchanged between participants. The SSFN communication network went into operation for the SIC system test environments in November 2021. A decision on the connection to the productive environment of the SIC system will be made during 2022. The existing communication link to the SIC system is thus to be gradually replaced by the SSFN.

Secure Swiss Finance Network

The negative impact of fraudulent payments in wholesale payment systems can be far-reaching not only for the participants directly affected, but also for the payment system as a whole. Against this background, the Committee on Payments and Market Infrastructures (CPMI) at the Bank for International Settlements (BIS) published a strategy in 2018 for reducing the risk of wholesale payments fraud related to endpoint security. Endpoint security in payment transactions means the protection of all devices, applications and systems used to submit payment messages against unauthorised third-party access. The SNB has defined measures on the basis of this strategy. One key measure is a catalogue of requirements, which is to be communicated to the SIC participants in the course of 2022. The operational and technical requirements contained in the catalogue are intended to increase the protection of the endpoints with regard to payment messages. The new catalogue of requirements supplements requirements already in place and expands the SIC participants' obligation to provide information to the SNB. Another significant contribution will be the consistent use of the SSFN to communicate with the SIC system.

Endpoint security to reduce fraud risk

Experiments with central bank digital currency for financial institutions

In 2020, the SNB carried out a first proof-of-concept (PoC) experiment with central bank digital currency (CBDC) for financial institutions, so-called wholesale CBDC, or wCBDC. The experiment successfully demonstrated the feasibility, from a technical and legal perspective, of issuing wCBDC on a financial market infrastructure based on distributed ledger technology (DLT). This experiment was called Project Helvetia and was carried out in collaboration with the BIS Innovation Hub Swiss Centre and SIX. The report on Project Helvetia was published in 2020 (cf. accountability report for 2020, chapter 7, box 'BIS Innovation Hub and projects at its Swiss Centre'). The findings were further explored in two more PoC experiments during 2021.

One of these experiments, Project Helvetia Phase II, explored the integration of wCBDC into the core banking systems of commercial banks and the SNB. This project was again carried out together with the BIS Innovation Hub Swiss Centre and SIX, but with the addition of five commercial banks. The following use cases were successfully tested and booked into the core banking systems: the issuance and redemption of wCBDC by the SNB, wCBDC payments between financial institutions both in Switzerland and abroad, as well as the settlement of securities transactions in wCBDC. Questions from an operational, legal and central bank perspective were addressed. Under current Swiss law, the issuance of wCBDC on a third-party platform would be feasible as long as the SNB has the necessary control and monitoring functions. The corresponding project report was published in January 2022.

The second PoC experiment, Project Jura, explored the cross-border settlement of securities and foreign exchange transactions with wCBDC in two currencies. This project was carried out in conjunction with the Banque de France, the BIS Innovation Hub Swiss Centre and a private sector consortium. The project showed how two central banks can issue wCBDC in their respective currencies on a shared financial market infrastructure while retaining control over the issuance and use of their own wCBDC. The solution presented would enable the settlement of cross-border transactions to be carried out directly in central bank money. The project report was published in December 2021.

Both PoC experiments were carried out on a DLT-based test platform of a SIX financial market infrastructure. With the issuance of wCBDC, securities and foreign exchange transactions could be settled directly in central bank money on such DLT-based infrastructure, which could lead to efficiency gains and contribute to the security of the financial system. However, further operational, legal and central bank-specific questions remain unanswered with regard to wCBDC (cf. also chapter 1.4, box 'Central bank digital currency').

The experiments detailed here are exploratory in nature and serve to better understand the implications of these new technologies. They therefore do not allow any conclusions to be drawn about the SNB's decision for or against the introduction of Swiss franc wCBDC.

5

Asset management

5.1 BACKGROUND

Mandate

The assets of the Swiss National Bank fulfil important monetary policy functions. They consist largely of investments in foreign currencies, gold and, to a lesser extent, financial assets in Swiss francs. Their size and composition are determined by the established monetary order and the requirements of monetary policy. Under art. 5 para. 2 of the National Bank Act (NBA), the SNB is responsible for managing the currency reserves, part of which must be held in the form of gold (art. 99 para. 3 Federal Constitution).

Currency reserves

The SNB's currency reserves are held primarily in the form of foreign currency investments and gold. The currency reserves also include international payment instruments and the reserve position in the International Monetary Fund (IMF).

Currency reserves ensure that the SNB has room for manoeuvre in its monetary policy at all times. They also serve to build confidence, and to prevent and overcome potential crises. In the current environment, the level of the currency reserves is largely dictated by the implementation of monetary policy. The level of currency reserves has multiplied since the onset of the financial and debt crisis. While these reserves amounted to CHF 85 billion at the end of 2007, by the end of 2021 they had risen to CHF 1,015 billion. The increase in recent years is mainly due to foreign currency purchases aimed at curbing the appreciation of the Swiss franc.

Financial assets in Swiss francs

The financial assets in Swiss francs are made up of Swiss franc bonds, claims from repo transactions, and secured loans from the SNB COVID-19 refinancing facility (CRF) established in 2020.

Investment principles

Asset management is governed by the primacy of monetary policy. In applying its investment policy, the SNB has two main objectives. The first is to ensure that its balance sheet can be used for monetary policy purposes at any time. In particular, the SNB must be in a position to expand or shrink the balance sheet if necessary. The second objective of investment policy is to preserve the value of currency reserves in the long term.

A high degree of market liquidity of the assets, in particular, is required to achieve the first main objective of ensuring sufficient room for manoeuvre in the implementation of monetary policy. The SNB therefore invests a substantial portion of its currency reserves in highly liquid foreign government bonds. The second main objective of preserving at least the real value of the assets over the long term is pursued through broad diversification of currencies. Additionally, to improve the long-term risk/return profile, government bond holdings in the major currencies are supplemented by other asset classes. Since all investments are valued in Swiss francs, the return must offset the Swiss franc's long-term upward trend. This necessitates a sufficiently positive return in the local currencies. By investing part of the currency reserves in a well-diversified range of shares and corporate bonds, the SNB is able to exploit the positive return contribution of these asset classes. At the same time, it retains the flexibility to adjust its monetary and investment policy to changing requirements.

The primacy of monetary policy means that there are restrictions on investment policy. With regard to its investments, the SNB does not hedge currency risks against the Swiss franc as this would constitute demand for Swiss francs, thereby generating upward pressure on the currency (cf. chapter 5.4). In addition, the SNB does not want to influence markets with its investment policy and therefore aims for minimal market impact.

The investment process ensures that no privileged information acquired within the SNB can influence investment activity and that no unintentional signal effects are created. For this reason, the SNB does not invest in the shares of any systemically important banks. Equally, it generally does not invest in Swiss shares or in bonds issued by Swiss companies, and the Swiss franc bond portfolio is managed passively.

5.2 INVESTMENT AND RISK CONTROL PROCESS

Bank Council and Risk Committee responsibilities

The NBA defines the SNB's responsibilities and describes in detail its mandate with regard to asset management. The Bank Council is charged with the integral oversight of the investment and risk control process. Its role is to assess the underlying principles and monitor compliance with them. The Risk Committee – which is composed of three Bank Council members – supports the Bank Council in this task. It monitors risk management, in particular, and evaluates the governance of the investment process. Internal risk management reporting is addressed to the Governing Board and the Risk Committee.

Governing Board responsibilities

The Governing Board defines the investment policy. Specifically, it sets the parameters for the balance sheet structure and investment targets, the investment universe, investment strategy and the associated risk tolerance, as well as the investment and risk control process. In particular, it sets out the requirements with regard to the security, liquidity and return of the investments, as well as the eligible currencies, asset classes, instruments, and borrower categories. The Governing Board decides on the composition of the currency reserves and other assets, and defines the foreign currency investment strategy. The investment strategy covers the allocation of foreign currency investments to different asset classes and currencies, and determines the scope for active management at operational level.

Investment Committee responsibilities

The Investment Committee, an internal body, decides on the tactical allocation of the foreign currency investments at operational level. Within the strategically prescribed ranges set by the Governing Board, it adjusts currency weightings, bond durations and allocations to the different asset classes, to take account of changed market conditions.

Portfolio Management responsibilities

Portfolio Management manages the individual portfolios. The majority of the foreign currency investments (97%) are managed internally. External asset managers are used to benchmark internal portfolio management and obtain efficient access to new asset classes. At operational level, responsibilities for monetary policy and investment policy transactions are organised in such a way as to avoid conflicts of interest.

The Asia-Pacific portfolios are managed by SNB portfolio managers in the Singapore branch office, which opened in 2013. It is the SNB's only branch office outside Switzerland. Its primary task is to ensure the efficient management of the SNB's currency reserves in the Asia-Pacific region. Having a presence in Asia is also beneficial when it comes to implementing monetary policy on the foreign exchange market. The office's trading and portfolio management operations are fully integrated into the investment and risk control process in Switzerland.

**Singapore office
responsibilities**

The most important element for managing absolute risk is broad diversification of investments. Risk is managed and mitigated by means of a system of reference portfolios (benchmarks), guidelines and limits. All relevant financial risks associated with investments are identified, assessed and monitored continuously. Risk measurement is based on standard procedures and risk indicators. In addition, sensitivity analyses and stress tests are carried out on a regular basis. The SNB's generally long-term investment horizon is taken into account in all of these risk analyses.

**Risk Management
responsibilities**

To assess and manage credit risk, information from major rating agencies, market indicators and in-house analyses are used. Credit limits are set on the basis of this information, and adjusted whenever the risk assessment changes. To mitigate counterparty risk, the replacement values of derivatives are usually netted for each counterparty and collateralised by securities. Concentration and reputational risks are also factored in when determining risk limits. Risk indicators are aggregated across all investments; compliance with the guidelines and limits is monitored daily. The risk analyses and results of risk monitoring activities are submitted to the Governing Board and the Bank Council's Risk Committee in quarterly risk reports. In addition, the Risk Management unit's annual report is submitted to the Bank Council.

5.3 CHANGES IN AND BREAKDOWN OF ASSETS

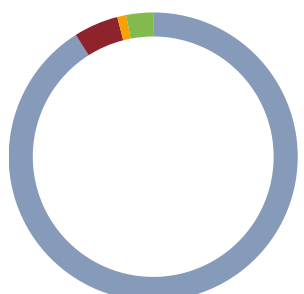
Changes in assets

At the end of 2021, the SNB's assets amounted to CHF 1,057 billion, which was CHF 58 billion higher than a year earlier. They consisted of foreign currency investments (CHF 966 billion), gold (CHF 56 billion), Special Drawing Rights (CHF 15 billion), Swiss franc bonds (CHF 4 billion), claims from Swiss franc repo transactions (CHF 3 billion) and claims from US dollar repo transactions (CHF 2 billion). US dollar repo transactions serve to enhance the provision of US dollar liquidity to the markets. Since 2020, the balance sheet has also included the item secured loans (CHF 9 billion). These are loans granted under the SNB COVID-19 refinancing facility (CRF) established in March 2020. Compared to the previous year, this item decreased by CHF 2 billion due to repayments. Other assets amounted to over CHF 1 billion.

The rise in the balance sheet total in 2021 was mainly attributable to higher foreign currency investments, which were up CHF 56 billion year-on-year. This increase was principally due to valuation gains and investment income as well as inflows from foreign currency purchases. Special Drawing Rights newly allocated to the SNB by the IMF, equivalent to CHF 8 billion, also contributed to the rise in the balance sheet total.

At the end of 2021, outstanding foreign currency repo transactions on the balance sheet amounted to CHF 21 billion. Such repo transactions are performed as part of portfolio management; foreign-issued securities are transferred for a given term in exchange for foreign currency sight deposits, and then the process is reversed at maturity. Since there is a market demand for these securities, a corresponding premium can be achieved with such repo transactions. There is also a temporary expansion of the balance sheet because, first, the securities that are temporarily exchanged under the transaction continue to be on the SNB's books and, second, the sight deposits received and the commitment to repay them at maturity are also reported in the balance sheet. Since these instruments are not freely disposable, they are deducted from the foreign currency investments for the calculation of the foreign exchange reserves and currency reserves.

BREAKDOWN OF SNB ASSETS



- Foreign currency investments **91%**
- Gold holdings **5%**
- Financial assets in CHF **1%**
- Sundry **3%**

Total: CHF 1,057 billion

At year-end 2021

The gold holdings of 1,040 tonnes remained unchanged over the course of the year, and their value was largely stable. At the end of 2021, total currency reserves amounted to CHF 1,015 billion, an increase of CHF 53 billion compared to the previous year.

Currency reserves

COMPOSITION OF CURRENCY RESERVES

In CHF billions

	31.12.2021	31.12.2020
Gold reserves	56	56
Foreign currency investments	966	910
Less: associated liabilities ¹	-21	-10
Derivatives (replacement values, net)	0	0
Total foreign exchange reserves	945	900
Reserve position in the IMF	2	2
International payment instruments	12	4
Total currency reserves	1 015	962

¹ Liabilities from foreign currency repo transactions.

The SNB's bond portfolios chiefly comprise government bonds (approximately 85% of total bond holdings). The selection of government bonds and the corresponding markets takes into account the SNB's specific requirements and, in particular, ensures a high degree of liquidity. Within a given market, investments are diversified broadly across maturities so that, if necessary, large volumes can be bought or sold with minimum impact on prices. In addition to government bonds, the bond portfolios in the foreign exchange reserves contain quasi-government bonds as well as bonds issued by supranational organisations, local authorities, financial institutions (mainly covered bonds and similar instruments) and other companies.

Bond portfolios

The average duration of the portfolio decreased slightly in 2021, and stood at 4.3 years at year-end. Just under 40% of the bonds had a negative yield to maturity.

Equity portfolios

Equities are managed passively according to a set of rules based on a strategic benchmark comprising a combination of equity indices in various markets and currencies. The principle of broadly replicating markets ensures that the SNB operates as neutrally as possible in the individual stock markets. The SNB does not overweight or underweight particular companies and sectors, in order to avoid concentration risks exceeding those of the market.

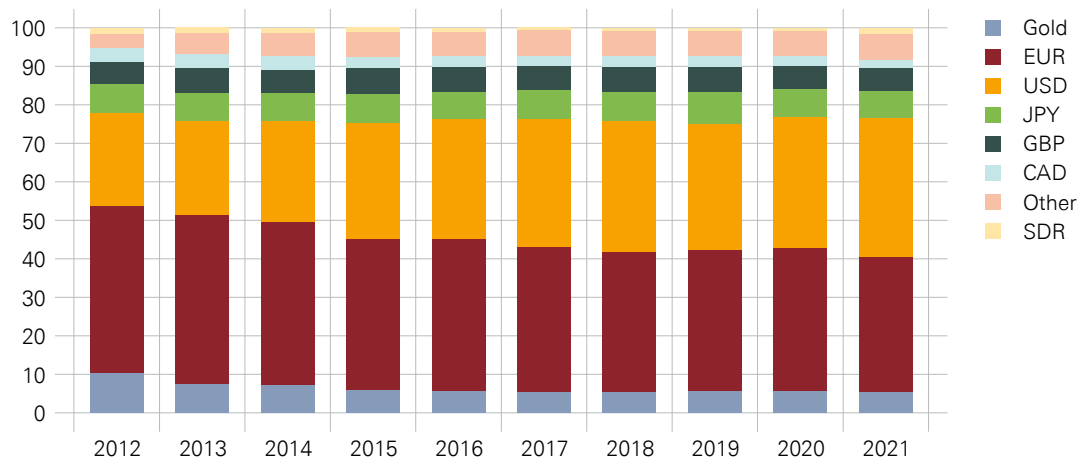
At the end of 2021, the equity portfolios comprised mostly shares of mid-cap and large-cap companies in advanced economies. Shares of small-cap companies in advanced economies and shares of companies in emerging economies were also held. This resulted in a globally well-diversified equity portfolio of 7,000 individual shares (over 1,300 shares of mid-cap and large-cap companies and 4,500 shares of small-cap companies in advanced economies, as well as just under 1,200 shares of companies in emerging economies). With its broad market coverage based on market capitalisation, the SNB's ownership share of individual mid-cap and large-cap companies in all advanced economies is roughly the same. For reasons of liquidity and risk, the corresponding proportions of small-cap companies and companies in emerging economies are somewhat lower; with respect to the individual companies, the proportions held by the SNB are also roughly the same.

Swiss franc bonds

The passively managed Swiss franc bond portfolio primarily contains bonds issued by the Confederation, the cantons, municipalities and foreign borrowers, as well as Swiss Pfandbriefe. In 2021, the average duration of the portfolio decreased slightly to 8.4 years. At the end of 2021, around 54% of the SNB's Swiss franc bond holdings of over CHF 4 billion had a negative yield to maturity.

BREAKDOWN OF CURRENCY RESERVES AT YEAR-END

In percent



Source(s): SNB

Non-financial aspects of managing securities of private sector issuers

The SNB holds part of its foreign currency investments in the form of shares and corporate bonds in order to take advantage of the positive return contribution of these asset classes and strengthen diversification, thus improving the long-term risk/return ratio. When managing securities of private sector issuers, the SNB also takes non-financial aspects into consideration.

Owing to its special role vis-à-vis the banking sector, the SNB refrains from investing in shares of systemically important banks worldwide. The SNB also takes account of Switzerland's fundamental standards and values in its investment policy. It does not invest in shares and bonds of companies whose products or production processes grossly violate values that are broadly accepted at a societal level. It therefore does not purchase securities issued by companies that seriously violate fundamental human rights, systematically cause severe environmental damage or are involved in the production of internationally condemned weapons.

Condemned weapons include biological and chemical weapons, cluster munitions and anti-personnel mines. Companies involved in the production of nuclear weapons for countries that are not among the five legitimate nuclear-weapon states defined under the Nuclear Non-Proliferation Treaty (China, France, Russia, United Kingdom and the United States) are also excluded. Individual companies are excluded under the criterion of systematically causing severe environmental damage if they, for example, systematically pollute waterways or the countryside, or seriously damage biodiversity through their production operations. Since December 2020, companies with a business model primarily based on coal mining for energy production have also been excluded. Not excluded are companies mining coal for steel production and conglomerates. The reason for expanding the environmental criterion was that there is a broad consensus in Switzerland in favour of phasing out coal for energy production.

The SNB reviews the whole investment universe on a regular basis in order to identify the companies concerned. A specialised external service provider reviews the SNB's investment universe to specifically identify companies involved in the manufacturing of condemned weapons. With regard to companies that focus on coal mining, the SNB bases its assessment on a classification by a specialised index provider. Companies that fall under other exclusion criteria are identified in a two-phase process. The first phase consists of examining and processing public information in order to identify companies whose activities are very likely to fall under the exclusion criteria. During the second phase, a detailed assessment is performed on each identified company to ascertain whether it should be excluded or not. The SNB relies on the recommendations made by the specialised external service providers in deciding on the exclusion of companies, and reviews its decisions on a regular basis.

The SNB analyses the risks associated with climate change on an ongoing basis. It monitors the latest developments and findings and, for this purpose, engages in regular discussions with other central banks and institutions as well as the scientific community. Within the Central Banks and Supervisors Network for Greening the Financial System (NGFS), it actively participates in the various workstreams. Among other things, it organised a workshop in 2021 on the integration of ESG (environmental, social, governance) criteria in actively and passively managed portfolios.

It should be noted that the constitutional and legislative authorities have deliberately not tasked the SNB with using its asset management activities to selectively influence the development of certain economic sectors. The SNB's investment policy therefore cannot be geared to pursuing structural policies, i.e. undertaking positive or negative selection with the aim of advantaging or disadvantaging specific economic sectors or of promoting or inhibiting economic, political or social change.

Against this backdrop, the SNB generally aims to replicate the individual stock markets in their entirety, taking into account the aforementioned exceptions. As a result, the SNB holds equities in the various economic sectors based on market capitalisation. This approach ensures that the portfolio's exposure to different risks is similar to that of the global universe of listed companies, and that structural changes in the global economy are also reflected in the SNB's portfolio.

The process of exercising voting rights relating to shares is another non-financial aspect of managing assets issued by private sector companies. Here, the SNB restricts itself to issues of good corporate governance. In the long term, good corporate governance helps companies – and hence the SNB's investments in them – to perform favourably. In exercising its voting rights, the SNB focuses on mid-cap and large-cap companies in Europe and also works with external service providers to this end. The voting procedure is based on the SNB's internal guidelines for exercising voting rights. The external service providers are tasked with interpreting the guidelines for exercising voting rights and applying them to the proposals being put forward at the shareholders' meetings. The SNB is in regular contact with the external service providers and monitors the correct interpretation of the guidelines for voting rights.

BREAKDOWN OF FOREIGN EXCHANGE RESERVES AND SWISS FRANC BOND INVESTMENTS AT YEAR-END

	2021		2020	
	Foreign exchange reserves	CHF bonds	Foreign exchange reserves	CHF bonds
Currency allocation (in percent, incl. derivatives positions)				
CHF		100		100
EUR	38		40	
USD	39		36	
JPY	8		8	
GBP	6		6	
CAD	2		3	
Other ¹	7		7	
Asset classes (in percent)				
Investments with banks	0		0	
Government bonds ²	66	35	70	38
Other bonds ³	11	65	10	62
Shares	23		20	
Breakdown of interest-bearing investments (in percent)				
AAA-rated ⁴	60	79	62	79
AA-rated ⁴	19	19	19	20
A-rated ⁴	16	1	15	1
Other	5	1	4	0
Investment duration (years)	4.3	8.4	4.6	8.6

1 Mainly AUD, CNY, DKK, KRW, SEK, SGD plus small holdings of other currencies in the equity portfolios.

2 Government bonds in own currency, deposits with central banks and the BIS; in the case of Swiss franc investments, also bonds issued by Swiss cantons and municipalities.

3 Government bonds in foreign currency as well as bonds issued by foreign local authorities and supranational organisations, covered bonds, corporate bonds, etc.

4 Average rating, calculated from the ratings of major credit rating agencies.

There was little year-on-year change in the structure of the foreign exchange reserves and Swiss franc bonds. The US dollar share increased slightly at the expense of the euro and the Canadian dollar, while the shares of other currencies remained unchanged. The proportion of AAA-rated investments receded slightly in favour of A-rated investments and other investments. The share of equities in the foreign exchange reserves stood at 23% at the end of 2021.

Changes in asset structure

5.4 BALANCE SHEET RISK

Risk profile	<p>The risk profile of the assets is determined by the currency reserves. The main risk to the currency reserves is market risk, in particular risks related to exchange rates, the gold price, share prices and interest rates. In addition, there is liquidity risk as well as credit and country risk, although these are not as significant as market risk. The contribution of Swiss franc bonds to total risk is negligible.</p>
Market risk	<p>Exchange rates are the most important risk factor for the currency reserves. As currency risk is not hedged against the Swiss franc, even minor changes in the Swiss franc exchange rates lead to substantial fluctuations in investment income, and thus in the SNB's equity. In addition to currency risk, fluctuations in the gold price and stock prices as well as interest rate risk are relevant. Currency risk, share price risk and interest rate risk are limited through the specification of benchmarks and management guidelines. Various means, including the use of derivative financial instruments such as interest rate swaps, stock index futures and interest rate futures, are used to control these risks. Foreign exchange derivatives can also be used to manage currency exposure.</p> <p>The SNB does not hedge currency risk against the Swiss franc, as hedging would have an undesirable impact on monetary policy. Hedging operations, for example selling foreign exchange forwards against Swiss francs, would create additional demand and increase upward pressure on the Swiss franc. Therefore, hedging would de facto have the same effect as a foreign exchange market intervention to strengthen the Swiss franc. For this reason, currency risk must be accepted as an inherent component of currency reserves.</p>
Liquidity risk	<p>The SNB's liquidity risk arises from the possibility that, should investments in foreign currencies need to be sold, such sales could be effected only partially or after considerable price concessions, or may not be possible at all. By holding a large volume of highly liquid government bonds in the major currencies – euros and US dollars – the SNB continued to ensure a correspondingly high level of liquidity in its foreign exchange reserves in 2021. Liquidity risk is reassessed periodically.</p>

Credit risk stems from the possibility that counterparties or issuers of securities do not meet their obligations. Such risks are inherent in bilateral (over-the-counter) transactions with banks and in bonds issued by all borrower categories. The SNB holds bonds issued by public and supranational borrowers, covered bonds and similar instruments as well as corporate bonds as part of its currency reserves. For issuers of bonds, the SNB requires a minimum rating of 'investment grade'. Exposure to individual issuers is limited by means of concentration limits. Credit risk arising from non-tradable instruments with respect to banks was very low in 2021. Replacement values of derivatives were netted and collateralised, in accordance with the ISDA (International Swaps and Derivatives Association) agreements with counterparties. The SNB settles most of its interest rate swaps via a central counterparty. On the one hand, this facilitates netting of offsetting positions. On the other, efficiency gains are made in the daily management of the securities used as collateral.

Credit risk

In 2021, too, investments mainly took the form of government bonds; the bulk of these were in highly liquid bonds issued by European countries with very good credit ratings and by the US. At the end of 2021, outstanding balances at central banks and the Bank for International Settlements amounted to just under CHF 130 billion. Overall, 79% of interest-bearing investments were rated AA or higher.

Country risk arises, among other things, from the possibility that a country may block payments by borrowers domiciled in its sovereign territory or block the right to dispose of assets held there. In order to avoid entering into any unbalanced country risk, the SNB endeavours to distribute assets across a number of different depositories and countries.

Country risk

Gold holdings are stored according to this principle as well. In choosing a location, attention is paid to both appropriate regional diversification and easy market access. As before, of the 1,040 tonnes of gold, approximately 70% is stored in Switzerland, some 20% at the Bank of England, and roughly 10% at the Bank of Canada. Decentralised storage of gold holdings in Switzerland and abroad ensures that the SNB has access to its gold reserves even in the event of a crisis.

Balance sheet growth

The increase in currency reserves largely stemming from monetary policy in recent years has led to corresponding growth in the SNB's balance sheet. The balance sheet total increased further in 2021, mainly due to valuation gains and income as well as inflows from foreign currency purchases. The growth in the balance sheet resulted in higher loss risk in absolute terms. The SNB aims for a robust balance sheet with sufficient equity capital, to ensure that it can absorb potential losses. With the expansion of the balance sheet from 2008 onwards, the ratio of equity capital to currency reserves has decreased significantly. As of 2009, allocations to the provisions were gradually increased, which contributed to halting the decline in the equity ratio.

Provisions and distribution reserve

The SNB is required by art. 99 para. 3 of the Federal Constitution to create sufficient currency reserves from its earnings. According to art. 30 para. 1 NBA, the SNB must set aside provisions that allow it to maintain the currency reserves at the necessary level, while taking into account the development of the Swiss economy. The provisions for currency reserves and the distribution reserve together form the SNB's equity capital. The provisions for currency reserves correspond to the desired level of equity capital at the given point in time, with funds being allocated to it on an annual basis. They are intended to ensure that the SNB has sufficient equity capital to absorb even large losses. The loss-absorbing equity capital also includes the distribution reserve. The non-distributed annual profit is allocated to the distribution reserve, or the shortfall for the appropriation of profit is drawn from it. The distribution reserve is a form of profit carried forward and serves as a fluctuation reserve to enable the legally required medium-term smoothing of the annual distributions.

Allocation to provisions

Annual allocations to the provisions for currency reserves are necessary to ensure a solid equity base. The annual allocation is determined on the basis of double the average nominal GDP growth rate over the previous five years. This requirement was supplemented in 2016 with the specification of a minimum annual allocation of 8% of the provisions for currency reserves. In view of the considerable increase in currency reserves in the subsequent years, the minimum allocation was raised to 10% as of 2020. This is aimed at ensuring that sufficient allocations are made to the provisions for currency reserves and the balance sheet is strengthened even in periods of low nominal GDP growth. The minimum allocation of 10% applied again in 2021 and amounted to CHF 8.7 billion. After the allocation, the provisions for currency reserves totalled just under CHF 96 billion.

In accordance with art. 31 para. 2 NBA, one-third of the SNB's net profit remaining after the dividend requirement is met accrues to the Confederation and two-thirds to the cantons. The amount of the annual profit distribution to the Confederation and the cantons is laid down in an agreement between the Federal Department of Finance (FDF) and the SNB, with the aim of smoothing the distributions in the medium term. In January 2021, the FDF and the SNB decided to conclude a new agreement covering the period through to 2025, which already applied to the profit distribution for 2020. The agreement provides for an annual distribution of up to CHF 6 billion if the SNB's financial situation permits. The maximum distribution will be made provided that a net profit of at least CHF 40 billion is achieved. This condition was fulfilled for the 2021 financial year. The profit distribution to the Confederation and the cantons for 2021 therefore came to CHF 6 billion.

Profit distribution for 2021

The SNB recorded a profit of CHF 26 billion in 2021. After allocation to the provisions for currency reserves of CHF 8.7 billion and taking account of the profit distribution to the Confederation and the cantons totalling CHF 6 billion for the 2021 financial year, the SNB's equity amounted to CHF 198 billion (provisions of CHF 96 billion plus a distribution reserve of CHF 102 billion). This was CHF 20 billion higher than one year earlier.

Changes in equity

5.5 INVESTMENT PERFORMANCE

Investment return comprises the returns on foreign exchange reserves, gold and Swiss franc bonds.

Investment performance

In 2021, the return on currency reserves was 2.7%. Gold declined slightly in value (-0.1%), whereas foreign exchange reserves yielded a positive return (2.9%). In local currency, the return on foreign exchange reserves was 3.5%. Owing to the appreciation of the Swiss franc, the exchange rate return was negative (-0.6%). In Swiss franc terms, the annual return on the currency reserves has averaged 2.3% over the last 15 years.

RETURN ON INVESTMENTS

Returns in percent

	Total ³	Gold ³	Currency reserves ¹			CHF bonds Total ³
			Total ³	Foreign exchange reserves Exchange rate return	Return in local currency	
2007	10.1	21.6	3.0	-1.3	4.4	-0.1
2008	-6.0	-2.2	-8.7	-8.9	0.3	5.4
2009	11.0	23.8	4.8	0.4	4.4	4.3
2010	-5.4	15.3	-10.1	-13.4	3.8	3.7
2011	4.9	12.3	3.1	-0.8	4.0	5.6
2012	2.3	2.8	2.2	-2.3	4.7	3.7
2013	-2.5	-30.0	0.7	-2.4	3.2	-2.2
2014	8.0	11.4	7.8	2.6	5.1	7.9
2015	-4.7	-10.5	-4.4	-5.6	1.3	2.3
2016	3.8	11.1	3.3	-0.4	3.7	1.3
2017	7.2	7.9	7.2	2.9	4.2	-0.1
2018	-2.1	-0.6	-2.2	-1.5	-0.7	0.2
2019	6.1	16.3	5.5	-2.4	8.1	3.2
2020	1.9	13.5	1.2	-4.5	6.0	1.2
2021	2.7	-0.1	2.9	-0.6	3.5	-2.4
2017–2021 ²	3.1	7.2	2.9	-1.2	4.2	0.4
2012–2021 ²	2.2	1.2	2.4	-1.4	3.9	1.5
2007–2021 ²	2.3	5.2	1.0	-2.6	3.7	2.2

1 In this table, they correspond to gold and foreign exchange reserves, excluding IMF Special Drawing Rights.

2 Average annual return over 5, 10 and 15 years.

3 In Swiss francs.

Contributions of asset classes to investment performance

The currency reserves are mainly composed of gold, bonds and shares. The diversification effects achieved by adding shares to a portfolio, as well as their high liquidity, make them an attractive asset class for the SNB. Furthermore, given that expected return is higher on shares than on bonds, this asset class helps to preserve the real value of the currency reserves. Though long-term return expectations are higher for equities, they are also subject to greater fluctuations in value. Yet, while equities, viewed on their own, are indeed more prone to fluctuation, in the context of the portfolio as a whole – and with an equity exposure of the current magnitude – this disadvantage is offset by the asset class's favourable diversification effects relative to bonds and gold.

The share of equity holdings stood at 23% at the end of 2021. Equity exposure improves the risk/return profile of the foreign exchange reserves. Measured in Swiss francs, the average annual return on equities since their introduction as an asset class in 2005 has been 5.5%. Likewise measured in Swiss francs, the annual return on bonds over the same period has averaged 0.6%. The bond component of the foreign exchange reserves recorded a loss of CHF 4 billion between 2005 and 2021. The equity holdings generated earnings of CHF 146 billion over this period. In recent years, equities have thus enabled the SNB to make distributions and increase its equity capital.

RETURNS ON FOREIGN EXCHANGE RESERVES, IN SWISS FRANCS

Returns in percent

	Total	Bonds	Shares
2005	10.8	10.6	24.4
2006	1.9	1.3	11.1
2007	3.0	3.3	0.6
2008	-8.7	-3.1	-44.9
2009	4.8	3.7	20.4
2010	-10.1	-11.0	-2.6
2011	3.1	4.0	-6.8
2012	2.2	0.8	12.7
2013	0.7	-2.4	20.4
2014	7.8	6.9	12.7
2015	-4.4	-5.2	0.6
2016	3.3	1.5	9.2
2017	7.2	4.5	18.4
2018	-2.2	-1.1	-7.1
2019	5.5	1.1	24.5
2020	1.2	-0.7	5.1
2021	2.9	-2.4	22.1
2005-2021 ¹	1.6	0.6	5.5

¹ Average annual return over 17 years.

6

Contribution to financial system stability

6.1 BACKGROUND

Mandate

Art. 5 para. 2 (e) of the National Bank Act (NBA) confers upon the Swiss National Bank the task of contributing to the stability of the financial system. Financial stability means that financial system participants, i.e. financial intermediaries (especially banks) and financial market infrastructures (FMIs), can perform their functions and are resilient to potential shocks and disruptions. It is an important prerequisite for economic development and effective monetary policy implementation.

In the field of financial stability, the SNB fulfils its mandate by analysing sources of risk to the financial system and identifying areas where action may be needed. In addition, it helps to create and implement a regulatory framework for the financial sector, and oversees systemically important FMIs.

Focus on crisis prevention

In recent years, there has been a shift in the focus of central banks' activities in the area of financial stability, away from crisis management and towards crisis prevention. To counteract the risks that can threaten the stability of the financial system, the SNB has two macroprudential regulatory powers at its disposal, namely the authority to designate banks as systemically important and the authority to propose the activation, adjustment or deactivation of the countercyclical capital buffer (CCyB). While the designation of systemically important banks is focused on combating structural risks, the CCyB is geared towards addressing cyclical risks.

In a crisis, the SNB fulfils its mandate by acting as lender of last resort where necessary. It provides emergency liquidity assistance to domestic banks whose insolvency would have a severe impact on financial system stability in cases where such banks are no longer able to refinance themselves on the market (cf. chapter 2.6).

Collaboration with FINMA, FDF and foreign authorities

At national level, the SNB works closely with the Swiss Financial Market Supervisory Authority (FINMA) and the Federal Department of Finance (FDF) to create a regulatory framework that promotes stability. The SNB addresses the issue mainly from a systemic perspective, and its focus is therefore on the macroprudential aspects of regulation. FINMA, on the other hand, is responsible for the supervision of individual financial institutions and for ensuring that the financial markets function effectively. The principles for this collaboration are set out in two Memoranda of Understanding: one bilateral with FINMA, and the other trilateral with FINMA and the FDF.

At international level, the SNB participates in the design of the regulatory framework through its membership of the Financial Stability Board, the Basel Committee on Banking Supervision, the Committee on Payments and Market Infrastructures and the Committee on the Global Financial System (cf. chapters 7.2.2 and 7.2.3). In the oversight of cross-border FMIs, the SNB liaises closely with FINMA and with foreign authorities.

6.2 MONITORING THE FINANCIAL SYSTEM

Within the context of monitoring the financial system, the SNB analyses developments and risks in the Swiss banking sector. Its assessment is published, in particular, in its annual Financial Stability Report.

6.2.1 GLOBALLY ACTIVE BANKS

In 2021, the SNB assessed the situation of the two globally active Swiss banks, Credit Suisse Group AG (Credit Suisse) and UBS Group AG (UBS), as robust. Both banks – but especially Credit Suisse – suffered losses on their positions in US hedge fund Archegos Capital Management (Archegos) in the first quarter. However, the global measures to support economies during the coronavirus pandemic and favourable market developments had a positive impact on the financial results of these two institutions, as well as on those of other globally active banks. The capital position of both globally active banks also continued to improve. At UBS, this improvement was due to retained earnings; at Credit Suisse, it was due in particular to the capital increase that it carried out in the wake of the Archegos losses. In the SNB's view, the two banks remain well placed to face the challenges presented by the current environment and support the real economy.

Situation of globally active banks remains robust

At the same time, the loss potential of Credit Suisse and UBS under the stress scenarios remained substantial. Furthermore, both banks took significant risks which are not directly linked to the macroeconomic environment. This was illustrated, among other things, by their Archegos-related losses. All these factors underline that the capital requirements under the current 'too big to fail' (TBTF) regulations are necessary to ensure adequate resilience at the two globally active banks.

Loss potential still substantial

Climate risk

In line with its statutory mandate, the SNB analyses climate-related risks to financial stability. As part of this, it is working on a joint pilot project with FINMA and the University of Zurich to identify and measure transition risks – i.e. risks associated with the transition to a low-carbon economy – at Switzerland’s two globally active banks. The findings will help decision-makers evaluate whether these risks are adequately covered or whether action needs to be taken.

Developments in resolution

Measures are in place to facilitate recovery or orderly wind-down (resolution) in a crisis where a bank can no longer continue to operate as a going concern (and is thus a ‘gone concern’). FINMA is responsible for bank resolution planning and implementation.

In relation to gone-concern loss-absorbing capacity, both globally active banks fully meet the requirements at a consolidated level.

For a successful resolution, the globally active banks must have both sufficient gone-concern loss-absorbing capacity and sufficient liquidity (funding in resolution). An analysis by the FDF in collaboration with FINMA and the SNB showed that current liquidity requirements for systemically important banks are not adequate to cover liquidity needs in the event of a resolution. In response to this conclusion, the FDF initiated a consultation on amendments to the Liquidity Ordinance on 30 September 2021. The revision is intended to ensure that systemically important banks hold sufficient liquidity to cover their needs even in the event of a resolution. The SNB was involved in developing the new regulatory concept and supports the proposed amendments to the Liquidity Ordinance. The entry into force of the revised Liquidity Ordinance is envisaged for 1 July 2022.

Little impact from coronavirus crisis

6.2.2 DOMESTICALLY FOCUSED BANKS

As regards the domestically focused banks – which concentrate on deposit and lending business – the SNB noted that the coronavirus pandemic had had little impact on the profitability of these institutions. In 2020, profitability had even improved slightly, and in the first half of 2021 it remained stable due to the fact that value adjustments on loans increased only marginally despite the coronavirus crisis. Furthermore, the decline in the interest rate margin slowed.

However, viewed over a longer period, the profitability of domestically focused banks remained low, and is likely to stay under pressure in the future. First, a further decline in the interest rate margin is to be expected if interest rates persist at a low level. Second, a lagged, moderate rise in the need for value adjustments for corporate loans is likely. This assessment is also shared by the banks concerned.

The domestically focused banks' exposure to the mortgage and real estate markets also continued to increase. Mortgage volume at these banks and affordability risks both rose again in 2021. At the same time, the upward trend in transaction prices for residential properties continued. Vulnerabilities on the Swiss mortgage and residential real estate markets have increased since the beginning of the coronavirus crisis.

Exposure to mortgage and real estate markets once again higher

Given these vulnerabilities, the capital buffers of the domestically focused banks play a crucial role. They enable the banks to absorb potential losses while, at the same time, supplying the economy with credit. The SNB's scenario analysis indicated that, thanks to the available capital buffers, most banks would be in a position to absorb the losses under relevant stress scenarios, e.g. an interest rate shock and a simultaneous correction in real estate prices.

Adequate resilience

The domestically focused systemically important banks (DF-SIBs) – Zürcher Kantonalbank, the Raiffeisen Group and PostFinance – have to fulfil additional going-concern and gone-concern requirements under the TBTF regulations. The three banks are fully compliant with the TBTF going-concern risk-weighted capital ratio and leverage ratio requirements. The gone-concern requirements entered into force in 2019 and are to be phased in by 2026. Like the globally active banks, the DF-SIBs would also be subject to any revised liquidity requirements for systemically important banks (cf. chapter 6.2.1).

Gone-concern requirements

In addition to the gone-concern requirements, emergency plans are necessary for the maintenance of systemically important functions in a crisis. FINMA is responsible for the assessment of emergency plans.

6.3 MEASURES RELATING TO MORTGAGE AND REAL ESTATE MARKETS

Measures up to end-2019

In the aftermath of the global financial crisis, vulnerabilities had increasingly built up due to the strong growth in mortgage volume and real estate prices. These vulnerabilities posed a threat to the stability of the banking system. In response to this, a sectoral CCyB of 1%, targeted at mortgage loans financing residential real estate in Switzerland, was activated in 2013; it was increased to 2% in 2014. Furthermore, the Swiss Bankers Association's self-regulation guidelines on mortgage financing were tightened several times.

Deactivation of CCyB in 2020

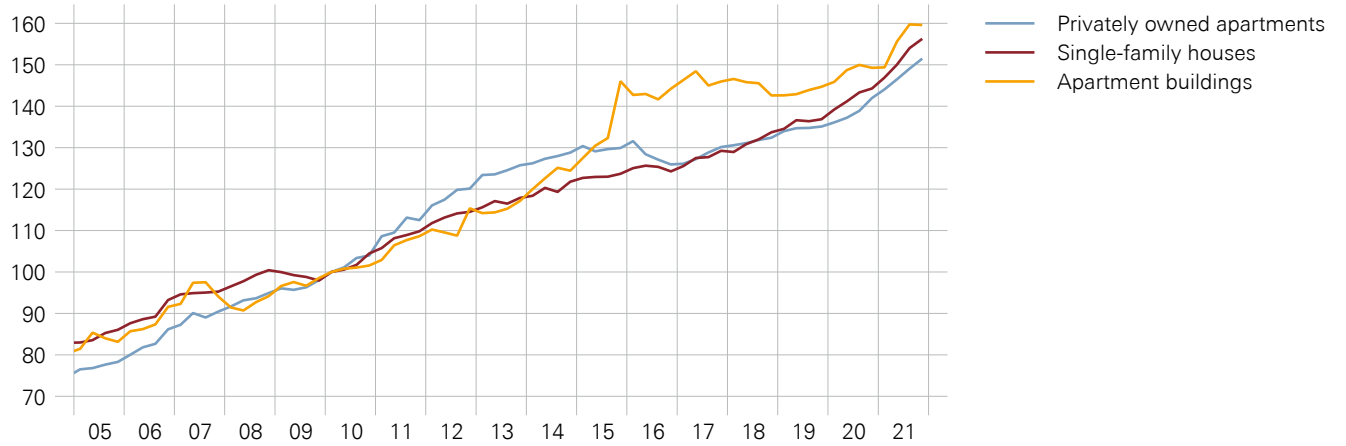
In March 2020, against the backdrop of the coronavirus pandemic, the sectoral CCyB was deactivated following a proposal by the SNB. The deactivation was made as part of a package of measures by the federal government, the SNB and FINMA and was aimed at giving banks maximum latitude for lending to companies.

Proposal for reactivation of sectoral CCyB in 2021

In light of the higher vulnerabilities on the Swiss mortgage and real estate markets since the beginning of the coronavirus crisis (cf. chapter 6.2.2), banks' capital adequacy is of great importance. At the end of 2021, the SNB therefore submitted a proposal to the Federal Council requesting that the sectoral CCyB be reactivated at 2.5%. Another key motivation for this proposal was that the reasons for deactivating the sectoral CCyB no longer existed. The pandemic-related uncertainty with regard to companies' access to credit had decreased significantly, thanks also to the measures taken by the authorities, and there were no signs that companies were experiencing a credit tightening (cf. chapter 1.4). The Federal Council approved the proposal on 26 January 2022. The new requirements apply from 30 September 2022.

REAL ESTATE PRICE INDICES

Transaction prices, nominal, index: Q1 2010 = 100



Source(s): Wüest Partner

6.4 OVERSIGHT OF FMIs

6.4.1 BACKGROUND

Mandate

The NBA (art. 5 and arts. 19–21) requires the SNB to oversee systemically important central counterparties, central securities depositories, payment systems and trading facilities for distributed ledger technology securities (DLT trading facilities) as specified in art. 22 of the Financial Market Infrastructure Act (FinMIA). To this end, the SNB cooperates with FINMA as well as with foreign supervisory and oversight authorities. The National Bank Ordinance (NBO) sets out the details of the oversight of systemically important FMIs.

Focus on systemically important FMIs

The domestic FMIs that could harbour risks for the stability of the financial system currently include the central counterparty SIX x-clear, the central securities depository SIX SIS and the payment system Swiss Interbank Clearing (SIC). These are operated by SIX x-clear Ltd, SIX SIS Ltd and SIX Interbank Clearing Ltd respectively, which are subsidiaries of SIX Group Ltd (SIX).

Other FMIs that are important for the stability of the Swiss financial system are the Continuous Linked Settlement (CLS) foreign exchange settlement system and the central counterparties London Clearing House (LCH) and Eurex Clearing. The operators of these FMIs are domiciled in the US, the UK and Germany respectively.

Cooperation with FINMA

The central counterparty SIX x-clear and the central securities depository SIX SIS are subject both to prudential supervision by FINMA and to oversight by the SNB. Although FINMA and the SNB exercise their supervisory and oversight powers separately, they coordinate their activities. Oversight of the SIC payment system is exclusively the SNB's responsibility.

For the oversight of Swiss FMIs with cross-border activities, the SNB cooperates with foreign authorities, in particular the European Securities and Markets Authority, the European Central Bank, authorities in the Netherlands, and the Bank of England. For the oversight of FMIs domiciled abroad, namely CLS, Eurex Clearing and LCH, the SNB cooperates with the relevant foreign authorities. It also participates in the oversight of the Belgium-based Society for Worldwide Interbank Financial Telecommunication (SWIFT), which operates a global network for the transmission of financial messages.

... and with foreign authorities

6.4.2 ONGOING OVERSIGHT

Based on their ongoing supervision and oversight activities, FINMA and the SNB issue annual statements regarding systemically important FMIs' compliance with regulatory requirements. While FINMA addresses compliance with the general requirements of the FinMIA, the SNB addresses compliance with the special requirements of the NBO.

Assessing compliance with special requirements

In its statements for 2021, the SNB noted that, with one exception, the systemically important FMIs were all complying with the special requirements. The exception related to requirements for business continuity management, which needs to be enhanced. In order to fully comply with the applicable business continuity management requirements, FMIs must deal more systematically and comprehensively with extreme but plausible scenarios as well as with the management of associated risks. In particular, the rapidly changing threat situation with regard to cyber risks – for example, the risk of total data loss due to a ransomware attack – must be taken into consideration to a greater degree. To this end, the FMIs developed an action plan in order to fully meet the business continuity management requirements in the future.

In its statements, the SNB set out expectations to be taken into consideration by FMIs in the ongoing development of their services and risk management tools in order to ensure continued compliance with the special requirements. For example, the SNB expected all FMIs to analyse the potential short, medium and long-term impact of physical risks – which may evolve due to climate change – on their operations. Where deemed necessary, appropriate measures should be taken in a timely manner. Furthermore, the SNB considered it necessary for SIX SIS Ltd to establish additional, reliable channels for the purchase and sale of illiquid securities in the event of a participant default, and to cover the associated market risk via appropriate margin requirements.

Monitoring major projects

The SNB maintains a regular dialogue with the operators of the FMIs subject to oversight in which it discusses projects and initiatives that could impact the FMIs' business activities or risk profile – and hence their ability to meet the special requirements.

In 2021, the SNB addressed in particular various SIX projects designed to enhance the latter's information security and resilience to cyber risks. For example, SIX initiated a project to enhance resilience in the event of a partial or total loss of data at its data centres. The SNB also addressed the SIC5 project, which aims to facilitate the instant settlement of cashless retail payments via the SIC system on a 24/7 basis (cf. chapter 4.2). The SNB focused in particular on ensuring that regulatory and supervisory aspects are appropriately considered and dealt with during implementation. In addition, it monitored the Secure Swiss Finance Network (SSFN) project, which aims to establish a protected and controlled network for secure, flexible and resilient communication between SIC participants and the SIC system. In the year under review, the SNB also looked at the planned introduction of a new clearing platform and its impact on SIX x-clear's risk management and information security. In a statement, the SNB set out conditions to ensure that the special requirements of the NBO can continue to be met.

6.4.3 ASSESSMENT OF SYSTEMIC IMPORTANCE OF FMIs

Central counterparties, central securities depositories, payment systems and DLT trading facilities which apply for a licence from FINMA are assessed by the SNB for their systemic importance pursuant to art. 22 para. 1 FinMIA. To conduct such an assessment, the SNB considers the impact of an FMI on the stability of the Swiss financial system. In 2021, FINMA passed on to the SNB the licensing application from SIX Interbank Clearing Ltd to operate the euroSIC payment system.

Authorisation procedure
for new Swiss FMIs

SIX Interbank Clearing Ltd submitted a licensing application to FINMA in July to operate the euroSIC payment system pursuant to art. 81 FinMIA. The euroSIC payment system processes payments in euros and offers its participants an interface with the European financial markets. As at the end of 2021, the SNB had not concluded its assessment of euroSIC's systemic importance.

euroSIC

In May, Diem Networks LLC withdrew its licensing application for the payment system Diem Payment Network (DPN) in Switzerland. The SNB therefore discontinued its assessment of DPN's systemic importance.

Diem Payment Network

6.5 FINANCIAL SECTOR CYBERSECURITY

Importance of cybersecurity for financial sector

Failures of – and disruptions to – IT systems, particularly those resulting from cyberincidents, can severely jeopardise the availability, integrity and confidentiality of data as well as critical services and functions within the financial system. It is first and foremost the responsibility of the individual financial institutions to adequately protect themselves against cyber risks. However, due to the highly interconnected nature of the financial system and the various cross-institutional processes, sector-wide precautions and measures are also necessary. This calls for, on the one hand, close cooperation between the private stakeholders. On the other, the federal government, FINMA and the SNB also contribute to the cybersecurity of the financial sector within the scope of their respective mandates.

Institutionalised cooperation between financial institutions and authorities

In Switzerland, the National Cyber Security Centre (NCSC), which is attached to the FDF, is responsible for the coordinated implementation of the national strategy for the protection of Switzerland against cyber risks. The SNB is participating in the project ‘Erhöhung Cyberresilienz Finanzmarkt Schweiz’ (enhancing cyber resilience in the Swiss financial market) – formerly FS-ISAC – launched in 2020 under the direction of the NCSC. The project aims to promote institutionalised cooperation between the private sector (banks, insurance companies, FMIs and industry associations) and the authorities (FDF, FINMA and SNB) in strategic and operational matters relating to cybersecurity. In the year under review, preparations were made to set up an association to support information exchange, the identification and implementation of sector-wide prevention and protection measures, and crisis management in the event of systemic cyberincidents. The association is to be established in spring 2022. The SNB intends to become a member and will actively support the association’s activities.

Sector-wide measures to enhance cybersecurity

The SNB conducts or takes part in projects aimed at enhancing cybersecurity on a sector-wide basis, particularly in the area of cashless payments. In 2021, two undertakings were at the forefront: the SSFN and the Endpoint Security project. The SNB pursued these projects in its role as commissioning party and system manager of the SIC payment system (cf. chapter 4.2).

Participation in international monetary cooperation

7.1 BACKGROUND

The Swiss National Bank participates in international monetary cooperation and, for this purpose, works with the Federal Council (art. 5 para. 3 National Bank Act). The objective of international monetary cooperation is to promote the functioning and stability of the international monetary and financial system and help overcome crises. As a globally integrated economy with a major financial centre and its own currency, Switzerland derives particular benefit from a stable international monetary and financial system.

Mandate

As part of its international monetary cooperation, the SNB is involved in multilateral institutions and forums, namely the International Monetary Fund (IMF), the Bank for International Settlements (BIS), the Financial Stability Board (FSB), the Organisation for Economic Co-operation and Development (OECD), the Central Banks and Supervisors Network for Greening the Financial System (NGFS), and the G20 Finance Track, the latter at the invitation of the G20 presidency. Participation in the IMF, FSB, OECD and the Finance Track is in cooperation with the federal government and, in the case of the FSB, also with the Swiss Financial Market Supervisory Authority (FINMA). Furthermore, the SNB cooperates with the federal government in providing international monetary assistance. It also cooperates on a bilateral level with other central banks and authorities. As part of this bilateral cooperation, the SNB provides technical assistance to central banks – mainly those from the group of countries with which Switzerland forms a constituency at the IMF.

Forms of international monetary cooperation

7.2 MULTILATERAL COOPERATION

7.2.1 INTERNATIONAL MONETARY FUND

The SNB contributes to IMF activities and decisions in collaboration with the federal government. The IMF is the central institution for international monetary cooperation. It promotes the stability of the global monetary and financial system as well as the economic stability of its 190 member countries. Its main fields of activity are economic policy surveillance, the provision of financial support to countries facing balance of payments difficulties, and technical assistance. Switzerland exercises its influence through its representation on the Board of Governors, in the International Monetary and Financial Committee (IMFC), and on the Executive Board.

Participation in IMF

Coronavirus crisis as challenge for global economic policy

In 2021, the IMF once again focused on managing the economic consequences of the pandemic. The economic recovery proceeded unevenly. According to the IMF's assessment, advanced economies are likely to return to their pre-pandemic growth path in 2022. However, most emerging economies and low-income countries, where the crisis has exacerbated existing vulnerabilities, will require more time to recover.

New allocation of Special Drawing Rights

One important decision made by the IMF in 2021 was a new general allocation of Special Drawing Rights (SDRs) equivalent to USD 650 billion. This was the largest SDR allocation in the history of the IMF. The allocation became effective in August. The measure was aimed at providing the global economy with additional liquidity and bolstering the reserves of member countries. The IMF also wanted to send a message in support of multilateral cooperation in combating the economic consequences of the pandemic.

Voluntary channelling of Special Drawing Rights

The general allocation saw SDRs allocated to member countries in proportion to their quota shares. This meant that the majority of these SDRs went to advanced economies and not to emerging economies and low-income countries. Around 3% of the allocation (roughly USD 21 billion) went to the poorest countries. Therefore, in order to magnify the effect of the SDR allocation, the IMF proposed options for voluntary channelling of SDRs to emerging economies and low-income countries.

Options for channelling

Of these options, IMF members particularly supported the one that provides for the voluntary use of SDRs to enhance the lending capacity of the Poverty Reduction and Growth Trust (PRGT). The PRGT is an effective and proven instrument to provide financial support to the poorest countries.

In addition, many IMF members were in favour of using the SDRs to create a new Resilience and Sustainability Trust (RST) to support not only the poorest, but also middle-income countries. The RST's precise design has yet to be determined.

To permit the use of SDRs as a means of payment, the IMF uses the voluntary trading arrangements (VTA) to ensure that its members can exchange their SDRs for freely usable currencies. The IMF has concluded such arrangements with a series of IMF members, including the SNB, which participates in Switzerland's name. The capacity of a given VTA is relative to the SDRs allocated to the relevant country and is increased in proportion to each new allocation. Switzerland received SDR 5.5 billion in the new allocation, which increased the SNB's willingness to purchase SDRs against freely usable currencies from SDR 1.6 billion to SDR 4.4 billion. The SNB thus helps to support countries with short-term liquidity requirements via this instrument.

Expanding capacity of voluntary trading arrangements

In addition to the SDR allocation, the IMF continued to support its member countries with loans during the crisis. Following the significant rise in lending during the previous year, the demand for regular loans – i.e. financed with general resources – stabilised in 2021. Total commitments at the end of 2021 amounted to SDR 171 billion, compared with SDR 184 billion at the end of 2020.

Stabilisation of regular IMF lending

In low-income countries, the IMF provides concessional lending arrangements, which are financed via the PRGT. Demand for such loans remained relatively high in many poorer countries due to the tense economic situation. The IMF's total commitments via the PRGT rose accordingly, from SDR 14.5 billion at the end of 2020 to around SDR 18 billion at the end of 2021.

Further increase in concessional lending

In July, the IMF approved a package of reforms for the granting of concessional loans to better support low-income countries. The centrepiece of the reforms was a 45% increase in the limits on access to PRGT loans. At the same time, the IMF launched a new financing round to support the sustainability of the PRGT. The aim of this financing round was to mobilise SDR 2.3 billion for interest subsidies and an additional SDR 12.6 billion for loans from potential donor countries.

Reforms of concessional lending and new financing round

New SNB loan to the PRGT

Switzerland's loans to the PRGT are granted by the SNB and guaranteed by the federal government, which finances interest subsidies with non-repayable grants. Switzerland had already granted the PRGT a new loan in the amount of SDR 500 million during the 2020 financing round. This new PRGT borrowing agreement between the IMF and the SNB entered into force at the beginning of 2021. During the 2021 financing round, Switzerland decided to contribute CHF 50 million to PRGT interest subsidies, pending approval by parliament.

Switzerland in the IMF

Switzerland is jointly represented in the IMF by the Federal Department of Finance (FDF) and the SNB. The Chairman of the SNB's Governing Board represents Switzerland on the Board of Governors, the IMF's highest decision-making body. The Head of the FDF is one of the 24 members of the IMFC, the IMF's steering committee. Switzerland is part of a voting group (constituency) whose other members are Azerbaijan, Kazakhstan, the Kyrgyz Republic, Poland, Serbia, Tajikistan, Turkmenistan and Uzbekistan. Switzerland and Poland alternate in appointing the constituency's executive director, for two years each time, the latter representing the group as one of the 24 members on the Executive Board, the IMF's most important operational body. The post of Swiss executive director is held alternately by a representative of the FDF and the SNB. The FDF and the SNB determine Switzerland's policy in the IMF and support the constituency's executive director in his or her activities.

IMF Special Drawing Rights

Special Drawing Rights (SDRs) are considered an international reserve asset. They were introduced by the IMF in 1969. The IMF uses them as a means of payment and unit of account for its financial transactions with member countries. The value of SDRs is based on a basket of currencies, which the IMF regularly reviews. The currencies in the basket are the US dollar, the euro, the renminbi, the yen and the pound sterling. At the end of 2021, one SDR was equivalent to CHF 1.28 or USD 1.40.

The IMF's main source of financing is its member countries' quotas. The quotas determine the participation of each member in the regular financing of the IMF (cf. box 'IMF quotas'). As a second line of defence, the New Arrangements to Borrow (NAB) form a permanent safety net in the event that the IMF's regular means are not sufficient to manage a crisis. Temporary bilateral borrowing agreements serve as a third line of defence for the IMF.

The IMF regularly reviews the appropriateness of quotas. The 16th General Review of Quotas is to conclude by the end of 2023. As with previous such reviews, the core issues are the overall size of the quota increase, and the distribution of the increase among the members.

Since the IMF members were unable to reach an agreement on an increase in quotas as part of the 15th General Review of Quotas, the IMF Executive Board and the NAB participants approved a doubling of the NAB resources in 2020. This reform of the NAB came into force in January 2021. At the same time, the temporary bilateral borrowing agreements were also renewed, in order to ensure that the available IMF financial resources do not fall below current levels. At the end of 2021, the IMF thus had SDR 171 billion of resources available for new loan commitments under the quota. Under the NAB, a further SDR 361 billion could have been activated. Under the new temporary bilateral borrowing agreements, a total of SDR 138 billion was available.

IMF quotas

Each IMF member has a quota, the amount of which is determined upon that member's admission to the IMF. GDP, economic and financial openness, the variability of trade and capital flows, and the level of reserves are all used in the formula to calculate the quota. Quotas are thus intended to reflect a given country's relative position in the world economy. The allocation of quotas is reviewed at regular intervals and adjusted as required, in particular during general quota increases. The quota fulfils three important functions. First, a member's quota determines the maximum amount of financial resources which the member is obliged to provide to the IMF if required. Second, the quota is used in determining a member's voting power in IMF decisions. Third, the amount of financing a member can obtain from the IMF is based on its quota.

Swiss contribution to IMF financing

At the end of 2021, Switzerland's commitment to financing the IMF's regular lending, under the framework of Switzerland's quota, under the NAB, and under the bilateral borrowing agreement, amounted to a maximum of CHF 25.3 billion. The SNB finances these amounts, with loans granted under the bilateral borrowing agreement being guaranteed by the federal government. The SNB's maximum commitment amounted to CHF 7.4 billion under the quota, CHF 14.2 billion under the NAB, and CHF 3.7 billion under the bilateral credit line. At the end of 2021, the IMF had drawn a total of CHF 2.0 billion under the quota and from previous activations of the NAB. Moreover, at the end of 2021, CHF 817 million in loans were outstanding under borrowing agreements between the SNB and the PRGT. The maximum IMF drawdown in this case amounted to CHF 1,105 million.

THE SNB'S FINANCIAL COMMITMENT TO THE IMF

In CHF billions

	Maximum	End-2021 Drawn down
Reserve position ¹		2.001
Quota	7.411	1.833
NAB	14.230	0.168
Bilateral borrowing agreement ²	3.662	0.000
PRGT ²	1.922	0.817
SDR ³	5.663	0.587

1 The used portion of the Swiss quota and the amount drawn by the IMF under the NAB and the bilateral borrowing agreement together equal Switzerland's reserve position in the IMF. This reserve position represents a liquid asset of the SNB vis-à-vis the IMF and thus forms part of the currency reserves.

2 With federal guarantee.

3 As part of the voluntary trading arrangement (VTA) with the IMF, the SNB has committed itself to purchasing or selling SDRs against foreign currencies (USD, EUR) up to the agreed maximum of SDR 4.4 billion (CHF 5.7 billion).

As part of its Article IV consultations, the IMF regularly reviews the economic policies of its member countries. Following an interruption in 2020 due to the coronavirus pandemic, an Article IV consultation with Switzerland was carried out once again in spring 2021. The IMF Executive Board concluded its country report on the consultation in June. The IMF recognised Switzerland's early and appropriate response to the outbreak of the pandemic, which helped limit the decline in economic output. Considering the ongoing major economic uncertainties caused by the pandemic, the IMF recommended the SNB continue its expansionary monetary policy including negative interest and, if necessary, foreign exchange market interventions. In addition, it advised the SNB to continue regularly assessing the appropriateness of its monetary policy approach. The IMF concluded by recommending that the SNB closely monitor the risks in the financial sector, especially with respect to the real estate market, and that it review and expand the macroprudential toolkit so as to be able to react to risks even more swiftly.

Article IV consultation

7.2.2 BANK FOR INTERNATIONAL SETTLEMENTS

The Bank for International Settlements (BIS) is an international organisation headquartered in Basel. It fosters international monetary and financial cooperation and serves as a bank and forum for central banks. The SNB has held one of the seats on the Board of Directors since the BIS was founded in 1930.

BIS as bank and forum for central banks

The governors of member central banks convene every two months to discuss developments in the global economy and the international financial system, and also to guide and oversee the work of the standing committees. The SNB participates in the four standing committees of the BIS: the Basel Committee on Banking Supervision, the Committee on Payments and Market Infrastructures, the Committee on the Global Financial System, and the Markets Committee. The SNB is also involved in the BIS Innovation Hub Swiss Centre (cf. box 'BIS Innovation Hub and projects at its Swiss Centre') and takes part in a working group on central bank digital currency.

BIS Innovation Hub and projects at its Swiss Centre

The BIS Innovation Hub Swiss Centre has been in existence since late 2019. In addition to the Swiss Centre, the BIS runs four further Centres, in Hong Kong, Singapore, London and Stockholm. Furthermore, a strategic partnership is in effect with the Federal Reserve Bank of New York. The Innovation Hub's objective is to gain in-depth insight into technological developments that affect central banking. It also aims to develop public goods in the technology space geared towards further improving the functioning of the global financial system. Moreover, the Innovation Hub provides a platform for the identification of relevant technological trends and for dialogue concerning innovations in central banking.

In 2021, an average of ten people (five of them seconded from the SNB) worked on four different projects. In addition to Project Helvetia and Project Jura, described in chapter 4.2, box 'Experiments with central bank digital currency for financial institutions', the employees were at work on Project Rio and Project Titus.

Project Rio's concept for a platform to monitor fast-paced markets, such as those for foreign exchange, was further developed and can now be used by central banks. The platform analyses continuously streaming market data and calculates indicators of market quality in key foreign exchange trading venues in real time. This allows conclusions to be drawn about market liquidity, among other things. Thanks to its participation in the project, the SNB was able to acquire valuable information on the deployment of new technologies.

For Project Titus, the BIS Innovation Hub built its own platform to experiment with distributed ledger technology (DLT) applications across its various Centres. A payment system is simulated on this platform to test a range of use cases. Specifically, Project Titus studies the feasibility of using various decentralised processes to reduce the liquidity requirements of participants in the payment system.

The Basel Committee on Banking Supervision (BCBS) brings together high-ranking representatives of banking supervisory authorities and central banks. It issues recommendations and sets international standards in the area of banking supervision.

**Basel Committee on
Banking Supervision**

In 2021, monitoring the consequences of the coronavirus pandemic for the banking sector continued to be central to the work of the Basel Committee. The body published a report on initial conclusions from the pandemic of relevance for the Basel reforms. One of its key conclusions is that the improved quality and higher level of capital and liquidity in the global banking system since the adoption of the Basel III reforms have helped the banks manage the considerable consequences of the coronavirus shock. The Basel reforms have thus contributed to bolstering the resilience of the banking sector.

The Basel Committee also stepped up its efforts at early identification of medium-term risks and structural trends affecting the banking system, and mitigation of negative consequences for financial stability. This includes work in connection with the ongoing digitalisation of finance, the effects on the banks of a persistent low interest-rate environment, and climate-related financial risks. Finally, the Committee continued to advance ongoing regulatory proposals designed to take into account new developments. Among other things, it conducted a consultation on the regulatory treatment of cryptoassets and initiated another one on the principles of monitoring and effectively managing climate-related financial risks.

The Committee on Payments and Market Infrastructures (CPMI) promotes the safety and efficiency of cashless payment arrangements and market infrastructures via which financial market transactions are cleared or settled.

**Committee on Payments
and Market Infrastructures**

In 2021, the CPMI focused on cross-border payments (cf. section on the Financial Stability Board (FSB) in this chapter). Following a roadmap developed by the FSB in 2020, the Committee initiated numerous conceptual and analytical studies aimed at improving cross-border payments. Among other things, the Committee also addressed digital innovations (e.g. digital currencies, stablecoins) as well as potential measures for improving the operational and financial resilience of financial market infrastructures.

Committee on the Global Financial System

The Committee on the Global Financial System (CGFS) monitors developments in international financial markets and analyses their impact on financial stability.

In 2021, the CGFS continued to address the impact of the pandemic on financial stability. This involved paying particular attention to the resilience of the banking sector and to the risks extreme fluctuations in capital flows present for emerging economies. Furthermore, the Committee explored the reasons behind the rise in real estate prices and the impact of this development on financial stability and inflation. In addition, the CGFS considered market expectations regarding the development of interest rates against the backdrop of normalising monetary policy.

Markets Committee

The Markets Committee (MC) examines current developments in the money, foreign exchange, capital and commodity markets, as well as the functioning of these markets.

In 2021, the MC continued to focus on the measures taken by central banks to combat the crisis and their impact on financial markets and market participants. Recent years have seen an increase in the frequency of market disruptions, calling for broad-based interventions on the part of central banks. Against this backdrop, the MC reviewed central bank instruments for the efficient management of such disruptions. The Committee also examined the potential impact of payment innovations on the implementation of monetary policy in the financial markets.

Working group on central bank digital currency

Since 2020, the SNB has been participating in a working group together with the Bank of Canada, the Bank of Japan, the Bank of England, the European Central Bank, the Sveriges Riksbank, the US Federal Reserve and the BIS. The aim of this working group is to discuss experiences in evaluating potential cases of central bank digital currency (CBDC). The working group published several reports in September 2021 on key aspects of the design and implementation of CBDC. The working group will continue to explore the feasibility of CBDC.

7.2.3 FINANCIAL STABILITY BOARD

The FSB brings together national authorities responsible for financial stability (central banks, supervisory authorities and finance ministries), international organisations, and standard-setting bodies. Switzerland's representation on the FSB is shared between the FDF, the SNB and FINMA. The SNB is a member of the Steering Committee, the Plenary, and the Standing Committee on Assessment of Vulnerabilities. Since November 2020, the SNB has chaired the Standing Committee on Budget and Resources.

Swiss representation on FSB

The FSB addresses the risks in the financial system and coordinates the precautions taken to counter such risks. The focus in 2021 continued to be on the impact of the pandemic on the global financial system. In this regard, the FSB published a report with initial findings on the effectiveness of the regulatory measures introduced in the wake of the 2008 global financial crisis. In contrast to the global financial crisis, the pandemic did not trigger a credit crunch. This was attributable both to the regulatory measures and to various support measures undertaken by states and central banks.

Risks in financial system

A major focus of the FSB's work in 2021 was the improvement of cross-border payments. On behalf of the G20, the FSB developed a roadmap to make cross-border payments quicker, cheaper, more transparent and more accessible. To this end, it cooperated closely with the Committee on Payments and Market Infrastructures (CPMI) at the BIS (cf. section on the CPMI in this chapter). An initial key milestone was reached in 2021 with the publication of goals for the assessment of progress in cross-border payments. Other work focused on reviewing and analysing existing and new payment options.

Improvement of cross-border payments

The FSB also considered the risks in the financial system attributable to the effects of climate change. It published a plan to address such risks, with a focus on the coordination of international initiatives. The aim was to obtain an overview, to identify gaps, and to prevent overlaps between various initiatives. In its own work, the FSB concentrated on companies' disclosure of climate risks, the analysis of climate-related risks for the financial system, and regulatory and supervisory options in the financial system.

Coordination of climate issues

**Risks arising from
cryptoassets and stablecoins**

The FSB also monitored the development of cryptoassets and stablecoins. Although the relevant markets remained small in comparison with the financial system as a whole, they saw significant growth in 2021. The FSB therefore initiated a new analysis of the risks to financial stability from cryptoassets and stablecoins; it reported its findings to the G20 in February 2022.

Participation in the OECD

7.2.4 OECD

Switzerland is a founding member of the Organisation for Economic Co-operation and Development (OECD). It works in the organisation's intergovernmental committees to maintain and develop relations among the 38 member countries with regard to economic, social and development policies. Together with the federal government, the SNB represents Switzerland on the Economic Policy Committee (EPC), the Committee on Financial Markets (CMF), and the Committee on Statistics and Statistical Policy (CSSP). The EPC and its working groups deal with developments in the global economy as well as with structural policy. The CMF analyses developments in the international financial markets and examines regulatory issues. The CSSP drafts standards for the national accounts in coordination with other international organisations.

Every two years, the OECD performs a detailed analysis of the economy of every member country. The results are published in country reports. The Swiss economy was evaluated in 2021, as ever in close cooperation with the federal government and the SNB. In its report, published in January 2022, the OECD found that the pandemic-related monetary and fiscal policy measures were appropriate. It recommended that monetary policy remain expansionary until the economic recovery was firmly underway. The OECD pointed out the continuing growth of imbalances on the residential real estate market, due among other things to the persistent low interest rate environment. It recommended reactivating the countercyclical capital buffer for residential mortgages.

7.2.5 G20

The G20 comprises the twenty leading advanced and emerging economies and is a key forum for international cooperation on financial and economic issues. In recent years, Switzerland has been invited to participate in the meetings of the G20 finance ministers and central bank governors, known as the Finance Track. These meetings focus on economic, monetary, and financial issues. It has also been involved in the preparatory meetings at deputy level and in the working groups. Swiss interests are represented jointly by the federal government and the SNB.

Switzerland's participation
in Finance Track

Switzerland was invited to participate in the 2021 Finance Track by the Italian G20 presidency. Italy's priorities for its presidency included the challenges of the pandemic for the world economy, financial support for countries in the greatest peril, and measures taken to counter climate change. Indonesia holds the G20 presidency in 2022, and Switzerland has again been invited to the Finance Track. The G20's work plays a key role in many areas of great importance to the SNB. This includes the positioning and coordination of the activities of various multilateral institutions. Matters pertaining to the international monetary system and global macrofinancial stability are paramount for the SNB in this context.

7.2.6 NETWORK FOR GREENING THE FINANCIAL SYSTEM

The Central Banks and Supervisors Network for Greening the Financial System (NGFS) is a network of central banks and supervisory authorities launched in December 2017 during the Paris One Planet Summit. It serves as a forum in which participating institutions can discuss the risks climate change poses to the economy and the financial system. Within the framework of the NGFS, institutions are examining how best to counter such risks and fund the transition to more sustainable economic activity. The SNB and FINMA are both represented in the NGFS Plenary.

Climate and environment-
related risks for financial
system

SNB participation

In 2021, the SNB engaged in dialogue in the NGFS so as to better gauge the potential impact of climate risks on macroeconomic developments and financial stability. The SNB took part in three of the five NGFS working groups – ‘Macrofinancial’, ‘Scaling up Green Finance’ and ‘Research’ – in which it focused among other things on scenario analysis of climate risks, climate-related risk management, recommendations for disclosures by central banks, sustainable financing, and the coordination of relevant research among central banks.

UN Climate Change Conference in Glasgow

On 3 November 2021, at the United Nations Climate Change Conference in Glasgow (COP26), the NGFS published a declaration outlining its contributions to meeting the challenge of climate change. As a supplement to this declaration, the SNB set out how it takes climate change into consideration in its activities as part of its statutory mandate (cf. chapter 1.4, box ‘Climate change – a challenge for monetary policy, financial stability and investment policy’).

7.3 BILATERAL COOPERATION

Principles

7.3.1 MONETARY ASSISTANCE

The division of responsibilities between the SNB and the federal government regarding the granting of monetary assistance loans is specified in the Monetary Assistance Act of 19 March 2004 (revised 2017). The Federal Council may instruct the SNB to grant loans or guarantees aimed at preventing or remedying serious disruptions in the international monetary system. A credit line amounting to CHF 10 billion has been established for such an eventuality. The SNB can also contribute to special funds or other IMF facilities, or grant bilateral monetary assistance loans to individual countries. The federal government can request that the SNB grant a loan. In return, the federal government guarantees the SNB the interest payments and principal repayment on the loan in all of the above cases.

In April 2016, at the instruction of the federal government, the SNB concluded a loan agreement with the National Bank of Ukraine for a maximum amount of USD 200 million. The federal government guarantees the SNB timely reimbursement and interest payments on the loan. Under the terms of the loan agreement, the disbursement is to be made in stages based on the payout of tranches under the IMF Extended Fund Facility of 2015, to whose implementation the loan is tied. The first tranche was disbursed at the beginning of March 2017. Following the replacement of the facility with a Stand-by Arrangement at the end of December 2018, no further tranches have been disbursed.

Lending to National Bank of Ukraine

7.3.2 COOPERATION WITH OTHER CENTRAL BANKS AND FOREIGN AUTHORITIES

The SNB cultivates regular bilateral contacts with other central banks. This includes the SNB's exchanges with other central banks on matters relating to international monetary cooperation. In addition, the SNB occasionally participates in financial dialogue with other countries, such as the United Kingdom, Hong Kong and Singapore. These encounters are led by the State Secretariat for International Finance (SIF) in liaison with various federal institutions and associated enterprises. They serve to strengthen the contacts with key partner countries and provide a platform for sharing views on financial topics.

7.3.3 US TREASURY

In December 2020, in its regularly published report on the foreign exchange policies of major trading partners of the United States, the US Treasury had designated Switzerland a currency manipulator. In its April 2021 and October 2021 reports, the US Treasury no longer classified Switzerland as a currency manipulator. The Federal Council and the SNB rejected the accusation of currency manipulation. The Swiss authorities conducted discussions with the US Treasury to explain Switzerland's special situation.

US Treasury report

Currency treaty and cooperation

7.3.4 PRINCIPALITY OF LIECHTENSTEIN

Switzerland and the Principality of Liechtenstein concluded a Currency Treaty in 1980. Prior to this, there had already been a de facto currency union between the two countries for nearly 60 years, albeit not based on a treaty. Under the Currency Treaty, the Swiss franc became legal tender in Liechtenstein, and the SNB became the country's central bank. As a result, certain Swiss legal and administrative regulations relating to monetary policy are applicable in Liechtenstein, in particular the National Bank Act and the National Bank Ordinance. The SNB has the same powers in respect of banks and other persons and entities in the Principality of Liechtenstein as it does in respect of banks, persons and entities domiciled in Switzerland. It cooperates closely with the relevant authorities in Liechtenstein.

Principles

7.3.5 TECHNICAL ASSISTANCE

The SNB provides technical assistance to other central banks upon request. This assistance comprises the transfer of central bank know-how, generally via individual consultations with SNB experts, either at the central bank concerned or in Switzerland. The SNB's technical assistance is primarily oriented towards the countries of Central Asia and the Caucasus that are members of Switzerland's constituency at the IMF and the World Bank.

Activities in 2021

Technical assistance in 2021 continued to be shaped by the coronavirus pandemic. Bilateral projects could, however, be successfully implemented, for the most part still by virtual means. For example, SNB economists advised the central banks of Kazakhstan, the Kyrgyz Republic and Turkmenistan in the areas of monetary policy analysis, statistics, internal audit, and education and training. In addition, on-site support could be provided to the Central Bank of Azerbaijan in its management of currency reserves, a project carried out in cooperation with the State Secretariat for Economic Affairs (SECO) and the Geneva-based Graduate Institute of International and Development Studies.

Central Bankers Courses at Study Center Gerzensee

The SNB has been running the Study Center Gerzensee since 1984. It serves as a hub for both academic research and training for central bankers from around the world. In 2021, in view of the pandemic, such courses were held either online or in hybrid form.

8

Banking services for the Confederation

The Swiss National Bank provides banking services to the Swiss Confederation (art. 5 para. 4 and art. 11 National Bank Act).

Mandate

The SNB provides these banking services to the Confederation in return for adequate remuneration. However, they are offered free of charge if they facilitate the implementation of monetary policy. Services subject to remuneration comprise account management, payment transactions, liquidity management, the custody of securities, and the issuance of money market debt register claims (MMDRCs) and Confederation bonds on behalf of and for the account of the Confederation. Details of the services to be provided and the remuneration are laid down in an agreement concluded between the Confederation and the SNB.

**Remuneration for
banking services**

In 2021, the Confederation's short-term financing needs remained virtually unchanged year-on-year. In particular, bids for MMDRCs amounted to CHF 159.7 billion (2020: CHF 200.9 billion), of which CHF 39.1 billion was allocated (2020: CHF 40.7 billion). The corresponding figures for Confederation bonds were CHF 10.5 billion (2020: CHF 6.1 billion) and CHF 7.2 billion (2020: CHF 3.8 billion) respectively. The SNB issued the MMDRCs and Confederation bonds by auction.

Issuing activities

In an environment of persistently low interest rates, money market rates remained low. Yields on MMDRCs thus also stayed in negative territory. Taken over the whole year, yields on three-month issues ranged from -0.740% to -0.849%.

Negative MMDRC yields

The SNB keeps sight deposit accounts in Swiss francs and foreign currencies for the Confederation. At year-end, liabilities towards the Confederation amounted to CHF 12.6 billion, compared to CHF 13.8 billion at the end of 2020. The Confederation's sight deposit accounts at the SNB are exempted from negative interest and thus do not bear interest.

**Account management
and payment transactions**

9

Statistics

9.1 BACKGROUND

Purpose of activities in field of statistics

On the basis of art. 14 of the National Bank Act (NBA), the Swiss National Bank collects the statistical data it requires to perform its statutory tasks. It collects data for the conduct of monetary policy and the oversight of financial market infrastructures (FMIs), for safeguarding the stability of the financial system and for preparing both the balance of payments and the statistics on the international investment position. Statistical data compiled for purposes relating to international monetary cooperation are transmitted to international organisations. The National Bank Ordinance (NBO) lays down the details of the SNB's activities in the field of statistics.

Reporting institutions

Banks, FMIs, securities firms and authorised parties in accordance with art. 13 para. 2 of the Collective Investment Schemes Act are required to provide the SNB with figures on their activities (art. 15 NBA). The SNB may also collect statistical data from other private individuals or legal entities where this is necessary to analyse developments in the financial markets, obtain an overview of payment transactions, or prepare the balance of payments or the statistics on Switzerland's international investment position. This applies in particular to entities for the issuing of payment instruments or for the processing, clearing and settlement of payment transactions, insurance companies, occupational pension institutions, and investment and holding companies.

Survey activity kept to minimum

The SNB limits the number and type of surveys to what is strictly necessary. It seeks to minimise the demands placed on reporting institutions.

Confidentiality and exchange of data

Pursuant to art. 16 NBA, the SNB ensures the confidentiality of the data it collects and only publishes them in aggregated form. However, the data may be supplied to the relevant Swiss financial market supervisory authorities.

9.2 PRODUCTS

The SNB conducts statistical surveys in the areas of banking statistics, collective investment statistics, the balance of payments and the international investment position, and payment transactions. An overview is contained in the annex to the NBO and on the SNB website. The SNB publishes the results of its surveys in the form of statistics. It also maintains a data bank with just under 19 million time series in the fields of banking, financial markets and economics.

Surveys and statistics

The SNB publishes its statistics on its online data portal (data.snb.ch) and its website (www.snb.ch) and, in some cases, also in the form of printed publications.

Statistical publications

The data portal was further expanded in 2021. Additional data on banks have been available since mid-June. In particular, the SNB now also publishes results from consolidated financial statements. Accordingly, in publishing data the SNB now differentiates between three perspectives: domestic office, parent company and also group. A video is available to explain the differences between the perspectives.

Expansion of SNB data portal

Furthermore, since mid-year the SNB has been making selected indicators on the current granting of mortgage loans by banks in Switzerland available on its data portal. The SNB now publishes time series on the volume of newly granted mortgage loans, borrowers' income, net rent and the valuation of pledged properties. In addition, the SNB publishes loan-to-value and affordability indicators, which are calculated on the basis of these data. The range of data also contains detailed information for various segments such as owner-occupied residential property, residential property rented out by households and residential property rented out by companies. The published data are based on an individual-loan survey of new mortgages that the SNB conducts with the largest mortgage-lending banks.

9.3 PROJECTS

Survey projects

The ‘Breakdown of selected balance sheet items, by interest rate’ survey of reporting banks was phased in during 2021. This new survey was prompted by the SNB’s requirement for data in connection with the negative interest rate regime. As of the second half of the year, SIX Group Ltd and PostFinance started supplying detailed data to the SNB on cash transactions at ATMs. Data delivery is in the form of a temporary supplementary survey pursuant to art. 6 NBO. The data support the SNB in performing its statutory task of ensuring the supply and distribution of cash.

The revised survey on customer payment transactions was conducted for the first time in January 2022. The revision came in response to the increasing digitalisation of payment transactions and changes in the public’s payment habits. Moreover, this survey is now conducted monthly instead of quarterly.

Global production processes

Work on the ‘global production processes’ project has been underway since 2017 to improve the recording of global production in Switzerland’s balance of payments statistics. The focus of the SNB’s internal project team is on the activities of multinational enterprises whose production and trade processes are distributed across various countries. This distribution leads to a separation of the finance and goods flows, which poses problems with regard to measurement, definition and data collection. Work on implementing the project continued in 2021. The aim is to publish data based on the revised surveys from 2024. Work is also underway on capturing both digital trade – trade in goods and services that are digitally ordered, digitally delivered or made available on a platform – and trade in intellectual property more comprehensively in the balance of payments statistics.

9.4 COLLABORATION

The SNB gives reporting institutions and their associations the opportunity to comment on organisational and procedural issues, as well as on the introduction of new surveys or the modification of existing ones.

The SNB is advised on the content of its banking surveys by the banking statistics committee. This committee is made up of representatives of the Swiss commercial banks, the Swiss Bankers Association and the Swiss Financial Market Supervisory Authority (FINMA). In 2021, the banking statistics committee dealt in particular with the triennial survey of foreign exchange and derivatives market activity, which is coordinated by the Bank for International Settlements (BIS) and planned for 2022. A group of experts under the direction of the SNB participates in the compilation of the balance of payments. It comprises representatives from manufacturing, banking and insurance, as well as from various federal agencies and academic bodies.

Groups of experts

In compiling statistical data, the SNB collaborates with the relevant federal government bodies, particularly the Swiss Federal Statistical Office (SFSO), with FINMA, and also with the authorities of other countries and international organisations.

Public institutions

The SNB has a close working relationship with the SFSO. Reciprocal data access is governed by a data exchange agreement; this agreement also covers the collaboration between the two authorities in drawing up the Swiss financial accounts. Moreover, the SNB belongs to a number of bodies that work with Swiss federal statistics. These include the Federal Statistics Committee and the group of experts for economic statistics (Expertengruppe für Wirtschaftsstatistik/Groupe d'experts de statistique économique).

Swiss Federal Statistical Office

Federal Office for Housing	The SNB collects quarterly data on mortgage rates from about 80 banks on behalf of the Federal Office for Housing (FOH). Based on these data, the FOH calculates the mortgage reference interest rate for tenancies. The sole responsibility for the contents of this survey lies with the FOH, which also publishes the reference rate.
FINMA	Under the terms of a Memorandum of Understanding between FINMA and the SNB on the collection and exchange of data, the SNB carries out surveys in areas such as capital adequacy, liquidity and interest rate risk of banks and securities firms. One focus in 2021 was on preparations for the revision of the Basel III (Basel III final) capital surveys and the implementation of the new survey on special liquidity requirements for systemically important institutions, scheduled to be introduced in July 2022. Adjustments were also made to the surveys on supervisory reporting and on the net stable funding ratio, as well as to capital adequacy reporting for systemically important banks. In addition, for the purposes of monitoring credit quality and COVID-19 loans, FINMA introduced a survey on value adjustments and provisions for default risks, which is conducted by the SNB.
Principality of Liechtenstein	The SNB also surveys Liechtenstein companies when preparing its balance of payments figures and its statistics on Switzerland's international investment position. It works with the relevant authorities in Liechtenstein (the Office of Economic Affairs and the Financial Market Authority).
EU	The SNB's collaboration with the EU is based on the bilateral agreement on statistics. It covers the financial accounts, parts of the banking statistics, the balance of payments and the international investment position, as well as the direct investment statistics. The SNB participates in various bodies of the EU statistical office (Eurostat).
Other international organisations	In the area of statistics, the SNB works closely with the BIS, the Organisation for Economic Co-operation and Development (OECD) and the International Monetary Fund (IMF). This collaboration is aimed at harmonising statistical survey methods and analyses.

