Analysis

Recent economic crises have modified the Bank of Finland's market operations

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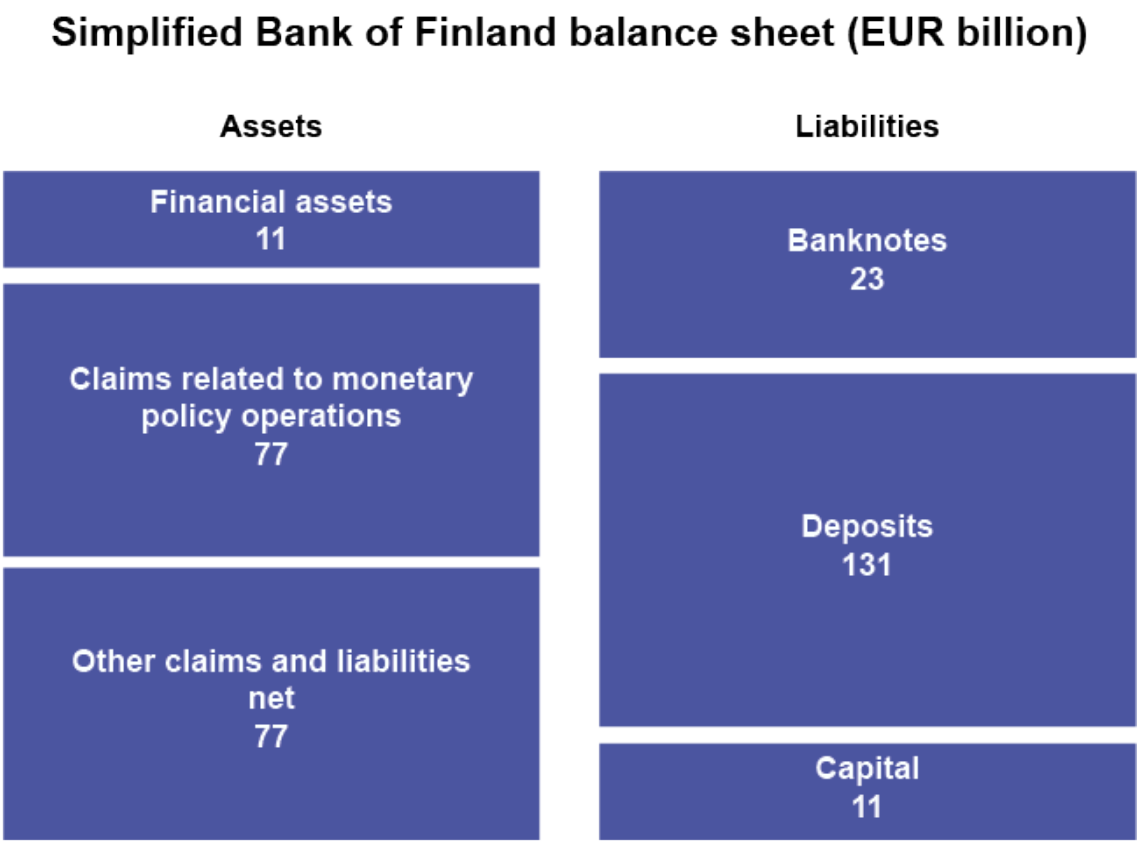
Since the global financial crisis and the European sovereign debt crisis, the traditional means used by central banks to influence economic activity and inflation have changed significantly. Once nominal risk-free interest rates fell towards zero, central banks' ability to implement monetary policy by simply adjusting their key interest rates ceased. Instead, in recent years central banks have eased financing conditions by conducting large-scale asset purchases and offering banks refinancing on favourable terms.



Monetary policy implementation was straightforward until the financial crisis

The Bank of Finland implements monetary policy in Finland as part of the Eurosystem. Monetary policy operations are reflected as line items on the Bank of Finland's balance sheet, and these include asset purchases and the deposits of and loans to banks operating in Finland. In addition to implementing monetary policy, the Bank of Finland manages its net financial assets on the financial markets (Chart 1). These activities are all reflected in the Bank of Finland's balance sheet (Chart 2).

Chart 1.

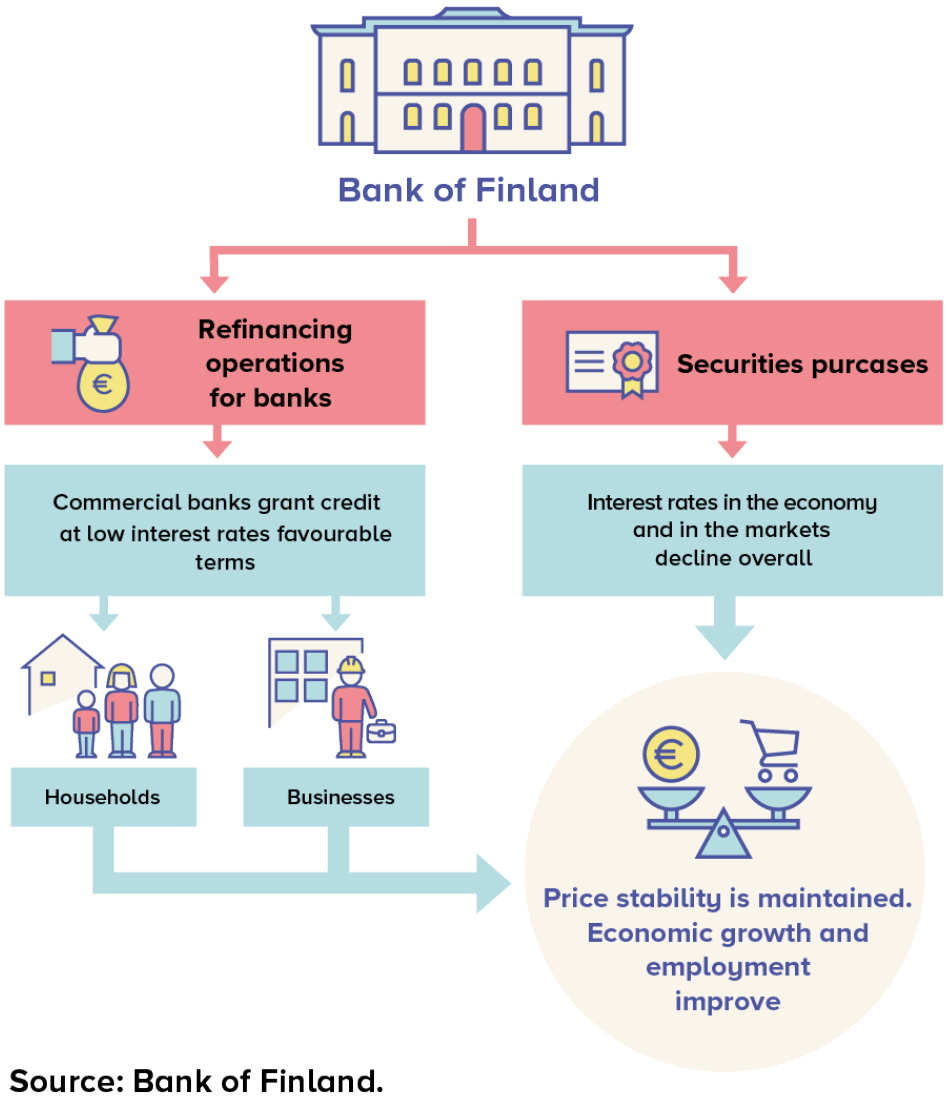


Source: Bank of Finland, information as of 31 July 2020.

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Chart 2.

Transmission of asset purchases and refinancing operations



Source: Bank of Finland.

The main objective of the Eurosystem's monetary policy is price stability. By keeping inflation stable, monetary policy can facilitate economic growth and employment and prevent unpredictable redistribution of wealth and income. The European Central Bank (ECB) aims to keep the annual rate of inflation in the euro area at levels below, but close to, 2% over the medium term.

Monetary policy influences economic activity and, most especially, prices through an assortment

of channels collectively known as the transmission mechanism of monetary policy. The transmission process involves a number of phases, which is why monetary policy has a lagged impact on prices. As the prevalence and magnitude of policy effects will vary depending on economic conditions, it is difficult to accurately predict them. The vast economic and financial turbulence of recent years and the new monetary policy measures devised by central banks, which include negative interest rates and large-scale asset purchases, have made it all the more challenging to assess the transmission of monetary policy.

Monetary policy implementation requires a target that is more tangible than the end-goal of price stability. Before the financial crisis, the level of short-term money-market interest rates served as the main operational target for monetary policy implementation for all the major central banks. Monetary policy was implemented with a symmetric interest rate corridor, where central banks adjusted the amount of liquidity available in the banking system to steer overnight interbank interest rates towards the central bank's main policy rate.[1]

Monetary policy implementation was rather straightforward before the financial crisis. In the euro area, the ECB conducted auctions of short-term, one-week loans to banks on a weekly basis (*main refinancing operations*). Changing the price of credit in these operations influenced short-term money-market rates. Changes in the money market rates were then reflected in other interest rates, for example in interest rates for bank loans. In Finland monetary policy transmission has traditionally been particularly effective, as the majority of bank loans to households and businesses are fixed to the euro area's most important money market rates—the Euribors.[2]

The crises of recent years have expanded the central bank toolkit

The global financial crisis, the European sovereign debt crisis and, most recently, the economic crisis sparked by the coronavirus pandemic have all led to a more diverse array of instruments for monetary policy implementation. This is largely explained by the disruption of the monetary policy transmission mechanism and interest rates approaching zero.

Before the crises, monetary policy implementation worked impeccably well but relied on three fundamental preconditions. First, the central bank should be able to guide short-term market rates. Second, changes in short-term rates should predictably influence other interest rates. Third, the central bank should be able to set its main policy rate at any level demanded by price stability.[3]

As the crises unfolded these conditions slowly fell apart. As banks' demand for liquidity ballooned and the interbank money markets began to falter, the link between money-market rates and the central bank's main policy rate became weaker.

It soon followed that changes in money-market rates were no longer effectively transmitting to the financial markets. For instance, when Lehman Brothers fell into insolvency, the Eurosystem was in a situation where improving the outlook for the economy and inflation would have demanded an easing of financing conditions. However, the spreads between the Euribor rates and their corresponding risk-free rates spiked across all maturities and significantly raised financing costs for both households and businesses.

In response, the Eurosystem extended the average maturity of its refinancing operations and moved from controlling the amount of liquidity in the banking system to setting the price of liquidity more directly. In practice this involved abandoning the provision of central bank credit to banks in competitive auctions in favour of a policy called full allotment.[4] Since October 2008 the volume of weekly refinancing operations has been determined by the demand of banks, with their demand being influenced by the price of central bank funding and their sufficiency of collateral. Collateral has received particular attention during the coronavirus pandemic, as it plays a key role in ensuring financial intermediation. Collateral is discussed in detail in Marjaana Hohti and Katri Järinen's article No credit without collateral.

In 2010–2012 the problems spread to the European sovereign bond markets. In the wake of the debt crisis the cost of funding for SMEs soared in the crisis countries. This was largely driven by the divergence of yields on sovereign bonds, which, through their impact on the costs of banks' refinancing, ultimately affected businesses and households. Financing conditions began to tighten in the countries hit hardest by the crisis just as the ECB began to increase its monetary accommodation. This greatly weakened the impact of the monetary policy measures.

Finally, the third condition—that the central bank should be able to set its policy rate at any level consistent with price stability—fell apart as inflation began to fall behind target. In the aftermath of the European sovereign debt crisis and confronted with the threat of a deflationary spiral, the ECB had effectively lowered its key interest rates to, or even below, zero. The room for traditional monetary policy stimulus had almost been exhausted, and at the same time a deflationary spiral had emerged as a significant threat. The case for non-standard monetary policy measures was clear.

Non-standard monetary policy measures were adopted as the zero lower bound approached

In normal times central banks support growth and employment by lowering their main policy rate. This raises price pressures in the economy and over time leads to higher inflation. In recent years, protracted low inflation has sustained the need to ease financing conditions even though interest rates have remained historically low.

However, lowering nominal interest rates into negative territory is difficult and even impossible to achieve on a broad front. When the central bank adopts a negative policy rate, economic agents are incentivised to hold their wealth in cash. However, ever greater quantities of money will not support economic activity if that money is not spent. A large-scale shift into cash would see bank deposits shrink and erode the financial base of the banks. As a result, banks have been loath to impose negative interest rates—at least on household deposits—even though the ECB's main interest rate in the euro area has been slightly negative since June 2014. A negative main interest rate diminishes the net interest income of banks and reduces their incentive to lend, at least without changing margins.[5]

Because of these factors, there is an effective lower bound on the central bank's main interest rate, although practice has shown that it lies somewhat below zero.

Since traditional monetary policy stimulus is approaching full capacity and there still remains a need for further stimulus, the Eurosystem has expanded its array of monetary policy instruments. In addition to guiding short-term risk-free rates, central banks have begun to target long-term rates and risk premia.

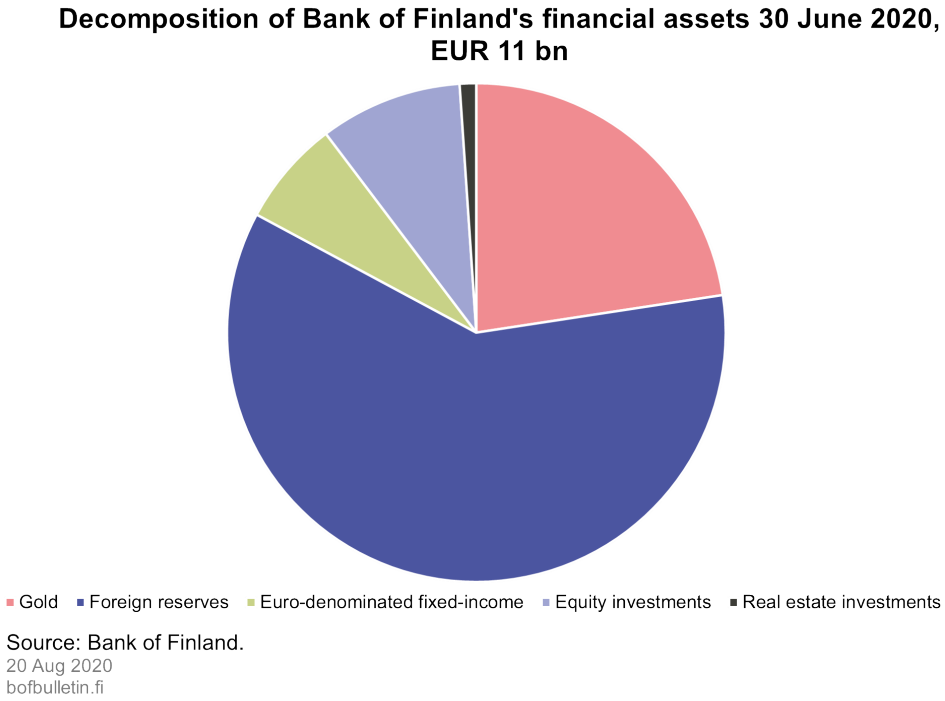
Long-term interest rates are determined by expectations of future short-term rates. During the crises, the ECB has begun to communicate estimates of its own interest rate path (the level of its key interest rates in the immediate years ahead) with *forward guidance*. When the central bank communicates its future interest rate path, this reduces the uncertainty associated with interest rates and lowers their risk premia. This eases financing conditions. Furthermore, committing to low levels of interest rates for an extended period of time also directly lowers long-term interest rates. The ECB has issued forward guidance on its key interest rates since 2013.

Monetary policy measures further expanded in the coronavirus pandemic

Central banks can influence the prices of securities by conducting large-scale asset purchases. For example, when the price of a bond increases, its yield (interest rate) in the market decreases. The ECB has conducted large-scale monetary policy outright purchases in sovereign bond markets and private sector bonds since 2015. In so doing, the Eurosystem has been able to further ease financing conditions in an environment where inflation prospects have persistently fallen short of the ECB's price stability objective (Chart 3). The most recent large-scale monetary policy purchase programme was launched as the coronavirus pandemic escalated, in March 2020. Under the pandemic emergency purchase programme, the Eurosystem may purchase up to EUR 1,350 billion of European bonds by mid-2021. The purchases will mitigate the coronavirus pandemic's constraining impact on financing conditions (Implementation of monetary policy purchase

programmes at the Bank of Finland).

Chart 3.



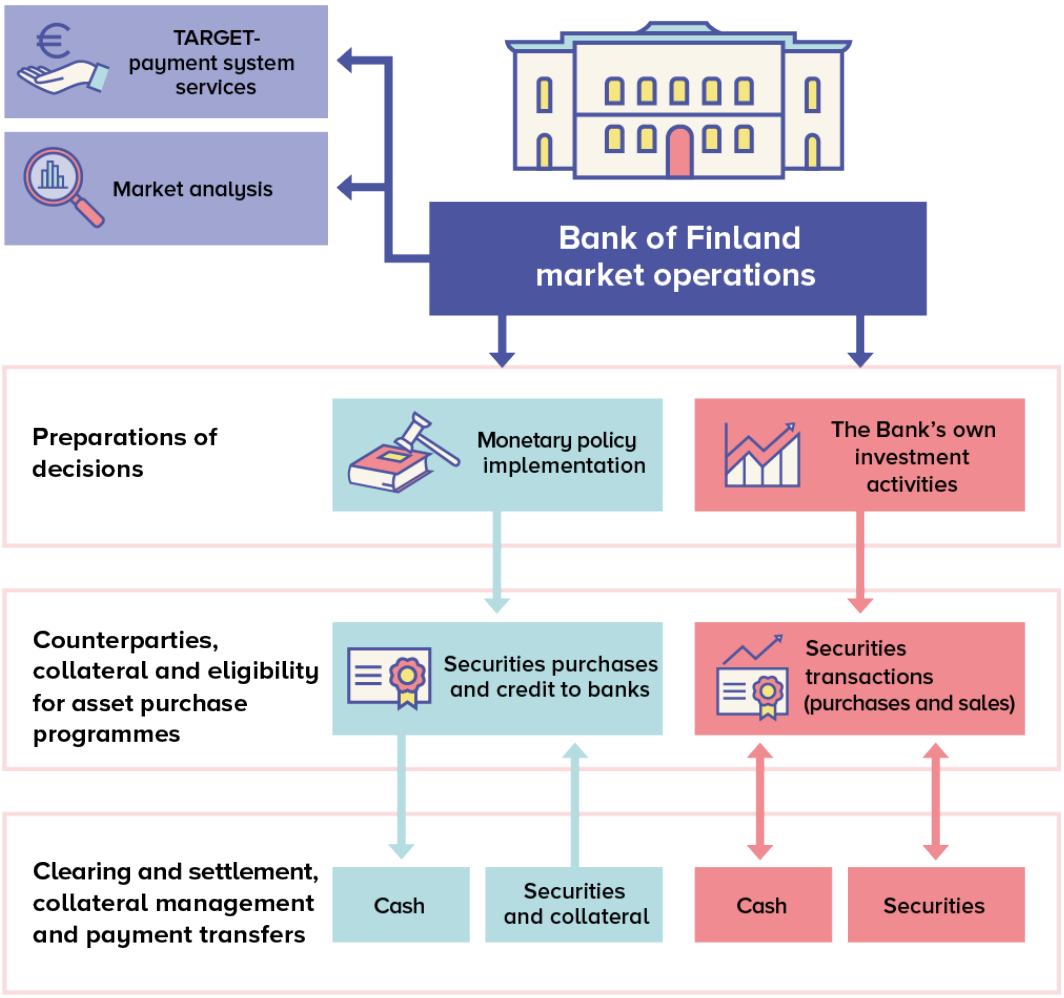
The Eurosystem has also facilitated bank lending by offering banks long-term refinancing (maturities up to four years) at very favourable interest rates. As a condition for this affordable long-term funding, banks have had to boost their lending to the real economy. In response to the economic impact of the coronavirus pandemic, the price of money in the latest series of targeted long-term refinancing operations was for the very first time set below the interest rate at which the ECB remunerates banks for their deposits with the central bank. As a result of the low price, euro area banks were issued over EUR 1,300 billion of refinancing in the June 2020 operation (Record amount of credit granted to Finnish banks).

Central bank loans are always collateralised, so the borrower bank must always submit securities or other assets to the central bank before it gets the refinancing. When central bank loans run into the hundreds or even thousands of billions of euro, collateral sufficiency may become an increasing constraint on credit growth. The ECB has, in fact, relaxed the eligibility criteria for securities collateral several times during the coronavirus pandemic. In addition, the euro area national central banks have been given the option of temporarily accepting credit claims as collateral at lighter terms and conditions. The Bank of Finland has decided to adopt such an additional credit claim framework as from 1 September 2020.[6]

Large-scale asset purchases and long-term refinancing operations both increase the amount of central bank money held in the euro area banking system. As a consequence, the volume of central bank money exceeding banks' minimum reserve requirements, i.e. the volume of excess liquidity, has increased to about EUR 2,800 billion as of July 2020 (Chart 4). Banks deposit their excess liquidity with the Eurosystem central banks on a daily basis. The most important ECB key interest rate for purposes of guiding market rates is currently the deposit facility rate, which has been negative since 2014. Since markets expect the banking system to remain in excess liquidity and the ECB to hold its deposit facility at a negative rate for many years, the least risky market rates have fallen into negative territory broadly across the euro area yield curve.

Chart 4.

The Bank of Finland's activities in financial markets



Source: Bank of Finland.

Negative interest rates, large-scale asset purchases and forward guidance have fundamentally transformed monetary policy implementation in the euro area in recent years. This naturally extends to monetary policy implementation at the Bank of Finland. In these circumstances, monitoring financial markets is an important part of preparing monetary-policy decisions and overseeing their implementation. Monitoring the financial markets is especially important during crises, as nascent issues in the economy and the financial system often emerge first on the financial markets (Information key on tumultuous markets).

Secure and reliable payment, clearing and settlement systems are critical for society at large and for monetary policy implementation in particular. Critical architecture such as these are increasingly built at the level of the Eurosystem. This allows for designs which are not only operationally efficient, but cost effective as well. Teemu Peltoniemi's article (The Bank of Finland maintains and develops the common European financial market infrastructure) looks at the key financial architecture produced by the Eurosystem and the Bank of Finland's role therein.

ⓘ Monetary policy decision-making in the euro area

In the euro area, monetary policy decisions are taken by the Governing Council of the European Central Bank. This comprises all the members of the Executive Board of the ECB and governors of the euro area national central banks. The Governor of the Bank of Finland thus has an important role in setting financing conditions for the whole of Europe.

The Governing Council's decision-making is supported by committees consisting of experts from all the Eurosystem's national central banks. The most important committees for the preparation and implementation of monetary policy are the Monetary Policy Committee (MPC) and the Market Operations Committee (MOC). The Bank of Finland's experts enjoy robust channels for influencing euro area monetary policy as it is being prepared. The Bank's success here is essentially determined by the ability of its experts to produce high-quality research and timely analyses, and by their ability to network with their international colleagues.

As investor, the central bank responds to the changing operating environment and, where necessary, to emergency situations

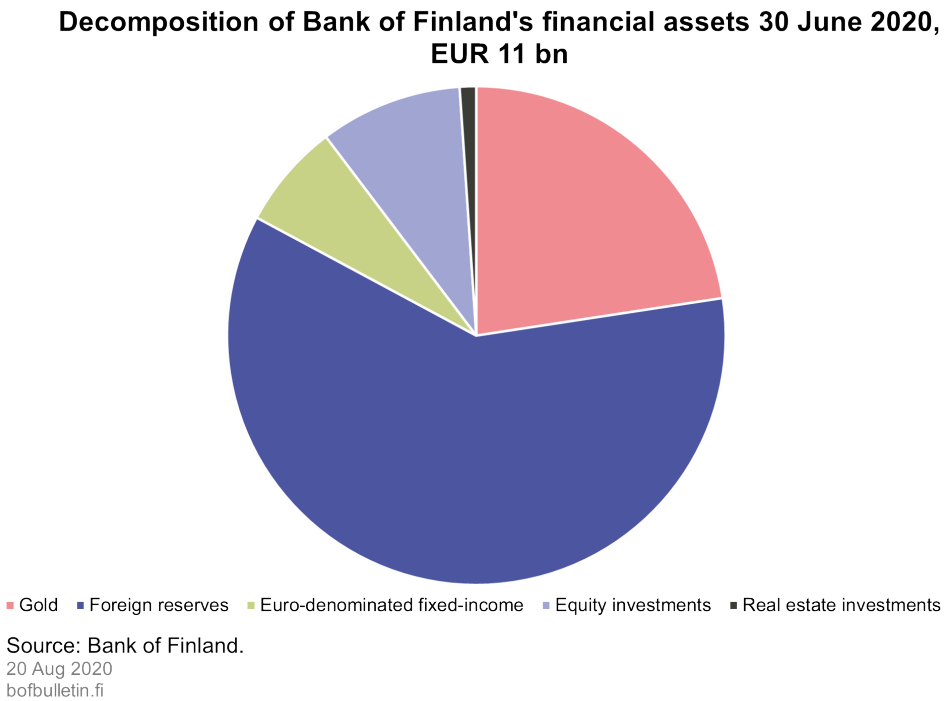
As part of the Eurosystem the Bank of Finland's balance sheet has certain special characteristics. (Balance sheet risks in monetary policy implementation). Some items on the balance sheet are directly related to monetary policy implementation, which is decided by the ECB Governing Council. Other items, such as foreign reserves and net investment assets, are more independently managed by the Bank of Finland in a manner that is consistent with the Governing Council's framework. The Eurosystem national central banks are financially independent entities which, in

addition to conducting monetary policy operations related to their main objective of price stability, have several domestic tasks.

In addition to receivables that are line items of monetary policy operations, the Bank of Finland's balance sheet also includes investment assets. The Governing Council sets the rules and limits on national central banks' holdings of financial assets (Agreement on Net Financial Assets). The Agreement on Net Financial Assets ensures that each national central bank manages its financial assets in a way that is consistent with the Eurosystem's monetary policy objectives. For example, allowing the investments of national central banks to grow before the financial crisis (and before the formation of outright monetary policy portfolios) mitigated the need to excessively scale up refinancing operations.

At the end of June 2020 the Bank of Finland's investment holdings, i.e. holdings of net financial assets, stood at around EUR 11 billion. They comprised gold and foreign reserves, euro-denominated fixed investment assets and equity and real-estate investments.

Chart 5.



The Bank of Finland's foreign reserves[7] are set at a level necessary for conducting central bank tasks. The level of foreign reserves is mainly based on contingency factors: the Eurosystem national central banks have committed to transferring part of their foreign reserves over to the ECB for currency intervention purposes if necessary, and, on the other hand, the Bank of Finland

holds foreign reserves to maintain Finland's external solvency in crisis situations. The Bank of Finland is also responsible for investing part of the ECB's foreign reserves. These reserves are needed for possible interventions by the Eurosystem.

The Bank of Finland's foreign reserve holdings stood at EUR 6.6 billion at the end of June, and the market value of its gold reserves stood at EUR 2.5 billion. Central bank foreign reserves are typically invested in high-grade bonds that carry low interest-rate risk and high liquidity. The majority of the Bank's foreign reserves are US dollar-denominated. The foreign reserves also include bonds denominated in pound sterling and Japanese yen. The Bank of Finland's currency risk has also been slightly diversified into Chinese yuan-denominated bonds through Special Drawing Rights allocated by the IMF. The reserves are invested in government and government-related bonds, covered bonds and corporate bonds.

ⓘ Management of the ECB's foreign reserves

When the euro was adopted, the Eurosystem national central banks transferred shares of their foreign reserve holdings over to the ECB in proportion to their capital key. Today the ECB's foreign reserves are invested chiefly in sovereign bonds denominated in US dollars, Japanese yen and Chinese renminbi. The Bank of Finland manages part of the ECB's foreign reserves. These reserves are required for potential currency interventions by the Eurosystem, so safety and liquidity are paramount in their management.

Decisions concerning the ECB's foreign reserves are jointly taken at the level of the Eurosystem, but the management of the reserves has been decentralised among the national central banks. However, this decentralised model still sees benefits from specialisation and rationalisation by merging portfolios. For example, the Bank of Finland and Bank of Estonia jointly manage their foreign reserve shares such that all market operations are conducted by the Bank of Finland. The ECB is responsible for the clearing and settlement of transactions related to the Bank of Finland's foreign reserve management, which brings further efficiency. It is clear that there are economies of scale to be had by collaborating at the level of the Eurosystem, for example in IT and systems development projects that are needed for the management of foreign reserves. The benefits of the decentralised model include the discovery and exchange of information that is only possible in a large network and, on the other hand, being able to influence big-

picture decision-making directly and transparently.

The Bank of Finland invests a share of its financial assets in international equity and property markets. These long-term investments diversify risk on the Bank's balance sheet and improve the balance sheet's characteristics in different market situations. Part of the long-term investments are for the pension provision of Bank of Finland employees. The market value of the long-term investments at the end of June 2020 was about EUR 1 billion. The investments are carried out by external portfolio managers and funds.

The euro area national central banks have the ability to deploy domestic support measures in economic crises. For example, in mid-March 2020 there were signs on the Finnish commercial paper market suggesting that corporate funding was about to run dry: the usual investors on this market were either unwilling or unable to reinvest their maturing securities, and were instead holding their positions in cash. The Bank of Finland quickly acted on the situation by investing – within the scope of its own risk management framework – on the commercial paper market within a few days of liquidity disappearing from the market. The Bank of Finland's presence on the commercial paper market directly supported the provision of short-term funding for businesses that fulfilled the Bank of Finland's risk management criteria, but also temporarily freed up the balance sheets of banks to lend to other Finnish businesses as well (Suomen Pankki käynnisti toimintansa yritysmarkkinoilla, only in Finnish).

The low interest rate environment creates challenges for the short-term profit outlook for central bank investment activities as well. Low interest rates, flat yield curves, and miniscule credit risk premia all make for an environment where the marginal return on investment risk is estimated to be low in historical terms. In periods of low interest rates, private-sector investors typically shift their asset allocations towards riskier and less-liquid assets in the search for yield. The proportion of equity and property investments in the Bank of Finland's asset allocation has similarly increased in recent years, but only moderately so. When looked at from the premise of central bank tasks, the need for liquidity and the riskiness of individual investments necessary rule out certain assets, such as unlisted shares. The same applies to unlisted debt instruments and structured credit risk.

The special characteristics of central bank asset management

The objectives of the Bank of Finland's asset management are security, liquidity and return. It is not a coincidence that the objectives are in this particular order, as central banks are careful investors. The higher-than-average liquidity requirement for investments is based on the tasks of the central bank, the role of the foreign reserves and the ability of the central bank to respond to potential crises on financial markets or to emergencies. Because the Bank of Finland implements monetary policy, as an investor it is distinct from, say, a typical institutional investor.

Within the constraints of security and liquidity, the Bank of Finland's asset management aims for the best possible return. One reason for this is to ensure that the Bank's risk buffers maintain their real value. The size of the risk buffers has to keep up with economic activity and inflation but also with changes in the financial sector.

At this point it is worth emphasising the difference between a central bank and sovereign wealth fund or government investment fund. The portfolios of sovereign wealth funds are typically far more aggressive with respect to risk and return and have little to no liquidity requirements. Their purpose is to store and transfer wealth across generations that has often been generated from income flows derived from natural resources. As for government investment funds, the goals of their investment activities may be geared towards industrial or regional policy, for example. A central bank's tolerance for risk derives from its stipulated central bank duties. The chief objective for the management of the gold and foreign reserves and long-term investments is to safeguard the stability and functionality of the financial system under all possible circumstances. Strengthening the Bank of Finland's balance sheet and risk buffers over the long-term serves this objective and will ensure that the bank remains operational in crises situations long into the future as well.

Investing is done over the long term. It is important that the risk exposure from investments is at a level where the central bank is able to tolerate even strong bouts of market volatility. This is a prerequisite for being able to conduct countercyclical policy with respect to market movements, instead of the central bank reinforcing market swings with its own investment activities. The importance of being able to bear risk is emphasised

in crisis situations, precisely when private sector entities are forced to reduce their risk either due to regulation or for reasons of risk management.

Risk transparency, or the ability to identify and quantify the risks of investment assets on an ongoing basis, is important in central bank asset management. In a low interest-rate environment and from the perspective of a central bank, holding one's asset allocation (by asset class) unchanged but expanding one's investments geographically or by sector are options for further diversifying an investment portfolio. Factor-based investment strategies and thematic investing can also be ways of improving a portfolio's risk-return ratio. One of the biggest trends in investing in recent years is ESG or sustainable investment (The Bank of Finland manages its financial assets sustainability). Despite the low interest rate environment the liquidity and transparency of assets are still important criteria when considering asset allocation.

Monetary policy and especially its implementation have undergone a series of revolutions since the onset of the financial crisis in 2008. Navigating uncharted waters requires a steady hand, but as the efficacy of old operating models has waned, we have had to discover new instruments for monetary policy implementation to achieve the desired policy effects. The heterogeneous experiences of the euro area national central banks from before Monetary Union have been an asset in the innovation work for monetary policy. However, even more critical for adapting to the new environment are timely situational pictures and high-quality research on and analysis of monetary policy implementation. It is here that the Bank of Finland has distinguished itself during the crises of recent years.

Notes

1. See Papadia and Välimäki (2011). The central bank's deposit facility rate and marginal lending facility rate set upper and lower bounds for the interest rate corridor. Money market interest rates typically settle within the interest rate corridor. ↑
2. The monetary policy transmission mechanism, all the way from interest rates to financing conditions and expectations, and from these to the economy at large and inflation, is explained in further detail in e.g. Papadia and Välimäki (2018) and ECB (2011). ↑
3. Papadia and Välimäki (2018). ↑
4. For a treatment of the theoretical framework of central bank liquidity auctions, see Central Bank Tenders: Three Essays on Money Market Liquidity Auctions (Välimäki, 2003). ↑
5. To mitigate this effect the Eurosystem currently does not remunerate all of a bank's central bank deposits at a negative interest rate. (See The Eurosystem's two-tier system for remunerating excess liquidity holdings). ↑
6. See Hohti and Järvinen (2020): No credit without collateral. ↑

7. Does not include share of ECB foreign reserves. ↑

Keywords

Bank of Finland, COVID-19, COVID-19 pandemic, Eurosystem, market operations, monetary policy