NORGES BANK

2021

NORWAY'S FINANCIAL SYSTEM

AN OVERVIEW

Key figures – Norway's financial system

GDP (gross domestic product)

3 413bn

GDP (mainland)

3 043bn

Government Pension Fund Global (GPFG)

10 914bn

Cash in circulation

41bn

Loans from financial institutions to private individuals, businesses and local governments

5 828bn

Total domestic bonds outstanding

2 439bn

Oslo Børs market capitalisation

2 778bn

Bank deposits

2 930bn

Average daily turnover in the foreign exchange market

257bn

Number of banks

134

Total assets of insurance companies

1 982bn

Card transactions per capita per annum

456

Debt-to-GDP ratio

229%

Norway's financial system

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Preface and reader's guide

Norway's financial system provides a general overview of the financial system in Norway, its tasks and how these tasks are carried out. This report is meant as a reference guide and textbook and is intended for a broad audience. The focus is on presenting the financial system in a simplified manner. Financial system professionals will also be able to find useful information. Hyperlinks to other, more detailed Norges Bank publications and to other institutions have been inserted in the text, enabling the reader to delve more deeply into topics of interest.

The introduction provides an overall overview of all the components of the financial system. Section 1 describes the various markets: the money, bond, foreign exchange and equity markets, and the financial derivatives markets. Section 2 discusses the most important financial institutions: banks, mortgage companies, insurance companies, pension schemes and various funds, etc. Section 3 describes the financial system infrastructure, which includes the payment system and systems for the payment and transfer of securities, foreign currency and derivatives.

The aim of this report is to promote public understanding of the financial system. The report will be revised annually to ensure that it is kept up to date and maintains its relevance as a reference and textbook. Readers are encouraged to suggest improvements or report errors, ambiguities or inadequate explanations. All comments should be sent to: dnfs@norges-bank.no.

Oslo, June 2021

The financial system

The financial system plays an important role in the economy, with three primary tasks:

- providing consumers and businesses with borrowing and saving opportunities,
- providing payment services and
- managing risk.

In a well-functioning financial system, these tasks are performed securely and efficiently. A system that is resilient to shocks reduces the probability of financial crises.

The financial system consists of many different institutions, markets and infrastructures. In this report, the financial system is divided into financial markets, financial institutions and the financial infrastructure (Table 1).

The users of the system are more or less all the members of society: businesses, public undertakings and most private individuals.

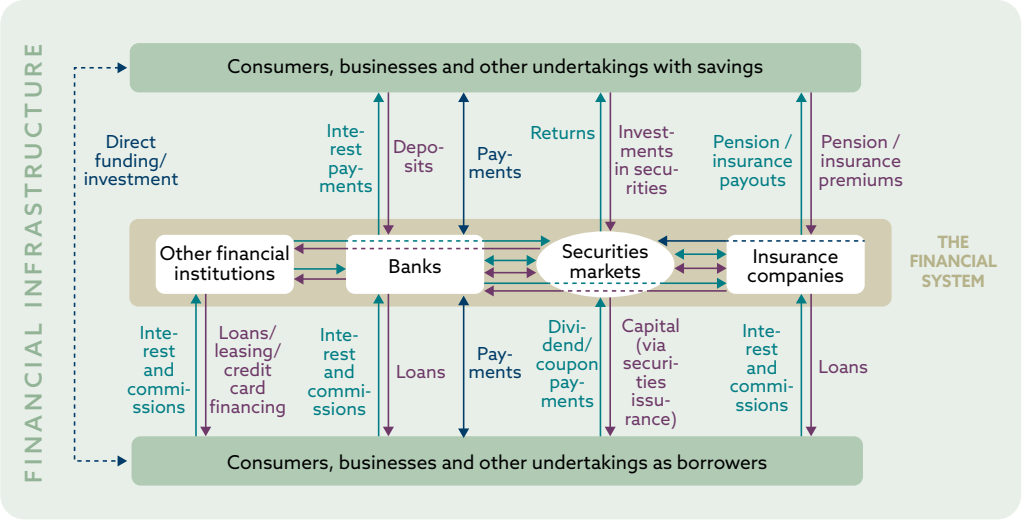
The definition of the financial system can be expanded to include, for example, institutions and mechanisms that provide security for contracts that are entered into, supply reliable information for effective credit intermediation and risk management and perform other functions such as supervision, regulation, registration of ownership rights, accounting, auditing, or credit ratings and other financial analyses.

Chart 1 shows a simplified diagram of the financial system. Consumers, businesses and other undertakings with savings are shown in the box at the top. Consumers, businesses and other undertakings as borrowers are in the box at the bottom. The middle segment shows the financial system, where savings are channelled into investment through markets and undertakings. In practice, the participants are generally both savers and

Table 1

1. Financial markets	2. Financial institutions	3. The financial infrastructure
Marketplaces for issuing and trading financial instruments. The properties of these instruments may vary with regard to return, risk, maturity, etc. In financial markets, savers can invest in corporate equity or in debt by lending directly to various borrowers.	Institutions such as banks, mortgage companies, pension funds, insurance companies, mutual funds, etc. They act as intermediaries between economic agents and play important roles related to the financial system's main tasks.	Ensures that payments and trades in financial instruments are recorded and settled. The legislation and standard agreements governing these processes are part of the financial infrastructure, as are computer systems and systems of communication between financial system participants.

Chart 1 What happens in the financial system?



borrowers. Banks create money when they issue a new loan to a customer (see box: **Creating money** in Section 2). Payments and risk management also primarily take place in the financial system. The financial infrastructure makes all these transactions possible.

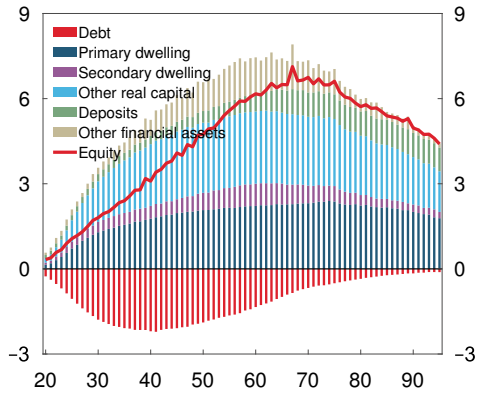
The primary tasks of the financial system

Providing consumers and businesses with borrowing and saving opportunities

Most people need to borrow money. Private individuals borrow to finance an education, a house purchase or spending on large consumption items or to cover a temporary decline in income. Similarly, most people need to store their money at times when income exceeds expenditure, ie to save. For example, consumers might save in order to contribute to a pension scheme, to have a reserve for unforeseen expenses or to have enough equity to purchase a home. The financial system enables private individuals to borrow and save and thus to spread their consumption over a lifespan, irrespective of when income is accrued (Chart 2).

Chart 2 Assets, debt and equity by age of main income earner

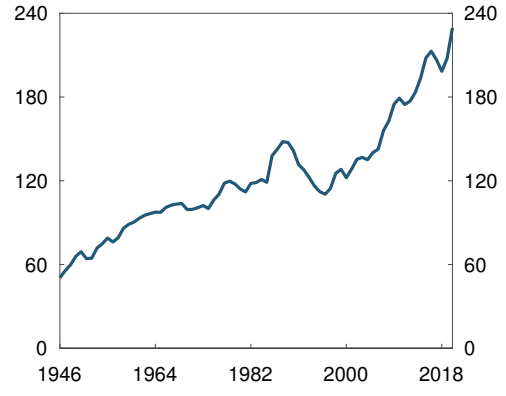
Mean in millions of NOK. 2018



Sources: Statistics Norway and Norges Bank

Chart 3 Total credit (C3) as a share of GDP

Percent



Sources: Statistics Norway and Norges Bank

Businesses might borrow to finance investments in property, equipment, development and production or to meet payment obligations in unprofitable periods. In profitable periods, businesses need investment opportunities in order to be better equipped to deal with leaner times or manage current payment obligations and finance future investment. The financial system is intended to provide opportunities for savings to be channelled to profitable investment projects.

Central and local governments might also borrow to fund investment and important expenditure during an economic downturn. Likewise, they need saving alternatives during upturns. Since 1990, the Norwegian government has saved a large portion of the government petroleum revenues through investment in the global financial market via the Government Pension Fund Global.

When a country's GDP rises, the total value of both financial assets and liabilities tends to rise even more. In Norway, the ratio of total private sector and local government debt (C3) to GDP has almost quadrupled since 1946 (Chart 3).

At any one point in time, some private individuals, businesses and governments will be borrowers and some will be savers. In the financial system, savings are channelled to investment both across and within these groups. As it is possible to borrow and save abroad, total savings are not necessarily equal to total investment. A well-functioning financial system channels financing efficiently, thereby promoting economic stability (see also box: **Creating money** in Section 2).

Financial institutions and financial markets are intermediaries between savers and investors. Savers seek saving options with different lock-in periods and risk. Financial institutions and securities markets offer an extensive range of savings products. This is an area in continuous evolution, with new products emerging and existing ones being discontinued.

Banks accept and hold savings in the form of deposits and they provide loans. Only banks are permitted to accept ordinary deposits from the public. Banks distribute these savings across a large number of investments (borrowers), which reduces the risk that banks will incur losses. Banks have also specialised in credit risk assessment of borrowers. The government authorities have initiated various measures to protect customers' deposits in Norwegian banks, including deposit insurance (see Section 2.3.7 *Deposit guarantees in Norway*). Savers can therefore make deposits without needing to assess how these deposits are invested by banks. For banks' customers and for society as a whole, the security provided by deposit insurance facilitates saving and investment because there is no need to be concerned about the safety of deposits.

Saving in a bank is a special form of saving because bank deposits are also used to make payments and therefore function as money. Today, bank deposits are the dominant means of payment in advanced economies. Most people with savings in banks therefore want their funds to be available quickly, ie they should be liquid. (For further details, see box: **Liquidity** in Section 1.) At the same time, people that take out a mortgage usually want the option of a long repayment period. In this regard, banks play an important role by converting short-term deposits into long-term loans. This is called maturity transformation. (Read more about maturity transformation in Section 2.3.1 *Banks' tasks*.)

Insurance companies and pension funds also act as intermediaries and accept savings that are earmarked for pensions. This capital is usually invested for the long term in Norwegian and international financial markets.

Large businesses and central and local governments can borrow or raise share capital in securities markets, where they receive saved funds directly from savers without having to go through financial institutions. Nevertheless, banks function as intermediaries by facilitating these transactions. Such investments generally require more research and monitoring by savers.

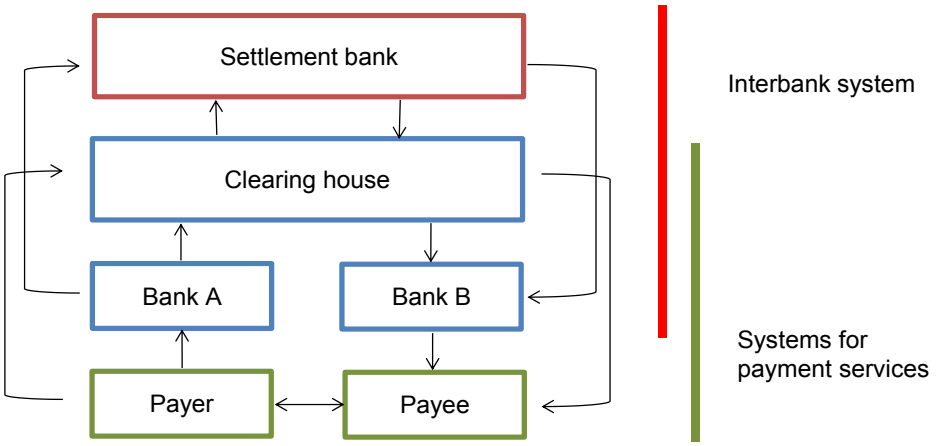
Providing payment services

Most of us make payments on a daily basis. We pay our bills using an online or mobile banking service and pay for goods in shops. We can pay using cash or using bank deposits, referred to as deposit money. Norges Bank issues cash based on user demand. Factors determining the quantity of deposit money are described in Section 2.3.1 *Banks' tasks*. Deposit money can be used for making payments using, for example, an online banking service, payment cards or a mobile phone.

In a barter economy, both participants of a transaction must agree upon a medium of exchange. In a monetary economy, there is a universally acknowledged medium of exchange, money. Money can be in the form of banknotes or coins that are a universally acknowledged medium of exchange because they are defined as such by law. But money can also be in the form of deposit money, which is universally acknowledged to the extent it can be withdrawn in the form of banknotes and coins in the same amount. Most transactions in the economy are settled using deposit money. For deposit money to be a universally acknowledged medium of exchange, confidence in the banking system is essential. (Read more about money in the box: **What is money?**)

There are a large number of banks and a very high number of payment transactions, including interbank transactions. Transactions using deposit money must be settled. Settlement is conducted in a settlement system, where, for example, 1000 payments between Bank A and Bank B can be collected together (netted) (Chart 4). All 1000 payments are settled and are acknowledged when B (or A) pays A (or B) the netted amount. Most interbank payments are settled in Norges Bank with what is referred to as central bank reserves, which are banks' deposits in Norges Bank. This means that banks settle payments to each other by transferring funds between their accounts at Norges Bank. Norges Bank manages the quantity of central bank reserves by offering lending and deposit facilities to banks, referred to as market operations. Loans from Norges Bank add central bank reserves to the banking system, and term deposits in Norges Bank

Chart 4 The Norwegian payment system



WHAT IS MONEY?

Money is a generally accepted means of payment. This means that money may be used as payment for goods and services and financial assets such as equities and bonds and for repaying loans. Money also has a function as a measure of value, for example the value of a good, and as a store of value. Banknotes and coins (cash) and bank deposits (deposit money) are defined as money.

Norwegian banknotes and coins are issued by Norges Bank, and the holder of Norwegian money has a claim on Norges Bank. Cash is legal tender in Norway for consumer transactions and is thus a generally accepted means of payment (see more in Section 3.1.1 *Cash*). Bank deposits refer to money issued by private banks and are liabilities on banks. Bank deposits are also generally accepted, but are not legal tender. An amount in the form of bank deposits can be converted to the same amount in cash and conversely. This is important if bank deposits are to be generally accepted as a means of payment.

Finanstilsynet is responsible for ensuring that issuers of bank deposits – banks – are solvent and are able to meet public demand. Norges Bank's task is to promote an efficient payment system, and thus oversee the entire financial system, and be able to take the actions normally expected of a central bank. In addition, the Norwegian Banks' Guarantee Fund guarantees bank deposits of up to NOK 2m per depositor per Norwegian bank (see Section 2.3.7 *Deposit guarantees in Norway*). Account holders, ie owners of bank deposits, gain access to their bank deposits using such payment instruments as bank cards and online or mobile banking solutions. Bank deposits are converted to cash by withdrawing cash from an ATM or over the counter.

The authorities do not determine the total volume of bank deposits or the quantity of banknotes and coins in circulation. Norges Bank issues cash on the basis of public demand. The volume of bank deposits depends, among other things, on the volume of bank lending (see box: **Creating money** in Section 2). Since bank lending is influenced by monetary policy, including the interest rate on banks' deposits with Norges Bank (the policy rate), Norges Bank is able to influence the volume of lending and thereby the volume of bank deposits.

drain reserves from the system. The most common market operations are F-loans and F-deposits (see Norges Bank's website).

A system based on money simplifies exchange considerably. It reduces transaction costs in the economy and facilitates a more effective division of labour in society. In a well-functioning payment system, money transfers are conducted securely, in a timely manner and at a low cost. The payment system is a central part of a country's infrastructure and important for the stability of the domestic currency, the financial system and the economy in general.

Risk management
Both private individuals and businesses want to insure themselves against risk. Fire, theft and auto insurance, for example, can be purchased from a non-life insurance undertaking. Life insurance companies and pension funds sell insurance that guarantees

payment in the event of disability or premature death of the insured. They also offer individual private pensions and group occupational pensions as a supplement to state pensions from the National Insurance Scheme.

Businesses may also seek insurance against various economic risks associated with their activities. There may be risks associated with future prices of both intermediate goods and final products. Exchange rate risk and the risk of a change in interest rates are other examples. Businesses can eliminate or mitigate such risks by means of financial instruments and derivatives. The sellers of derivatives can insure against, or hedge, their own risk by offering derivatives contracts to buyers with opposite needs, cover risk by owning the underlying instruments or resell risk to others. Capital markets also help to diversify and redistribute risk associated with investments. Investors can manage risk by owning securities with different types of desired risk. Diversification also reduces risk for those who invest their savings in mutual funds or asset management companies.

Banks are also experts at assessing the risk associated with the various investment projects for which they provide loans. Bank depositors can therefore entrust such assessments to the banks. The depositors' risk is also reduced because banks spread, or diversify, their lending across a large number of borrowers and, not least, because deposits are insured through a deposit insurance scheme. The current scheme in Norway covers deposits up to NOK 2m per depositor per bank. Banks are also subject to special government regulation.

Supervision and regulation of the financial system

A well-functioning financial system is crucial to a modern economy. If making payments or obtaining loans became impossible, this could quickly have wide-reaching consequences for the entire economy. The financial system is therefore subject to more regulation and supervision by the authorities than most other sectors of the economy. (Read more about the most important types of risk in the financial system in the box: **Risks in the financial system**.)

The financial system is primarily regulated through legislation. A licence issued by the authorities is required to establish a financial institution or to perform specific services within the financial system. Under the terms of the licence, an institution must meet extensive requirements and is supervised by the authorities to ensure compliance. In the event of non-compliance, the licence can be revoked.

An institution may be required to hold a specific quantity of equity capital, hold liquid assets or be run by an appropriate board and management. Regulations may be direct in that certain activities are prohibited, for example, or indirect, in the form of risk-based capital requirements. Financial market regulation often applies to the marketplace itself, for example restricting the groups that may participate. There are also requirements for disclosure to the general public, market participants and the authorities.

The purpose of regulation is to ensure that the financial system is stable and efficient. The Ministry of Finance is responsible for submitting draft legislation relating to the financial system to the Storting (Norwegian parliament). The establishment of new institutions or other undertakings is also primarily authorised by the Ministry of Finance. Interbank systems, for the settlement of interbank payments, are an exception. Norges Bank is the licensing authority for interbank systems, owing to its key role in, and responsibility for, the payment system.

RISKS IN THE FINANCIAL SYSTEM

The financial system contributes to more effective risk management in the economy. One element of risk management is identifying the nature of a risk and how it can be prevented. Pricing of risk is an important part of this work. There are different kinds of risk:

Credit risk is the risk of losses when a counterparty cannot settle its accounts. For example, the counterparty may be the issuer of a security, a counterparty in a derivative contract or a borrower with a bank loan. For corporate loans, credit risk can be associated with a sector's ability to service debt (for example construction) or with individual borrowers.

Liquidity risk is the risk that an undertaking cannot meet its payment obligations when due without incurring substantial additional costs. Liquidity risk may arise, for example, from the difference in terms to maturity between banks' assets and liabilities. Deposits in banks are typically open-ended with no prior notice of termination required, while bank loans have longer maturities. Liquidity risk is also used to refer to the risk of prices being influenced when securities or other assets are traded and is then referred to as market liquidity risk (see box: **Liquidity** in Section 1).

Market risk is a collective term for the risk of losses due to movements in market prices such as interest rates, exchange rates, commodity prices or share prices. These types of risk are often referred to as interest rate risk, foreign exchange risk, commodity price risk and equity risk.

Operational risk is the risk of losses associated with technical malfunctions, human error and inadequate control systems, such as faulty procedures, errors in or attacks on IT systems, regulatory violations, fraud, fire, terror attacks, etc. Operational risk can cause or amplify other kinds of risk.

Legal risk can be defined as the risk of losses when a contract cannot be enforced as planned, or because collateral cannot be realised as envisaged. Legal risk can arise in international business transactions as the legal basis often varies across countries.

If one or more of these risks reaches a high enough level, the efficiency and security of the financial system may be jeopardised. Systemic risk may then arise. Systemic risk in the area of financial stability is the risk that the financial system cannot perform its functions and hence contribute to a severe downturn in the real economy. Systemic risk takes into account the resilience of the financial system and the wider economy. Systemic risk can vary over time or be more structural in nature. Time-varying systemic risk is especially associated with developments in debt, asset prices and the mismatch between the maturities of banks' assets and liabilities. Structural systemic risk is particularly associated with the degree of concentration in the financial system, the number and size of systemically important institutions and weaknesses in the financial infrastructure.

Finanstilsynet (Financial Supervisory Authority of Norway) is primarily responsible for supervising institutions in the financial system to ensure that they comply with current legislation. Finanstilsynet can also impose new regulations on or issue recommendations on practices in the financial system. The aim of supervision is partly to ensure that the financial system's main tasks are performed in a sound manner and partly to protect user interests.

For the payment system to be efficient and secure, the banks must also be efficient and secure. Finanstilsynet has a particular responsibility for supervision related to banks' solvency, management and control. Norges Bank has a particular responsibility for clearing and settlement systems. Both institutions are responsible for ensuring that the system as a whole functions as intended.

As a disruption in the financial system can have severe consequences, it is important for institutions and the authorities to be prepared to handle adverse scenarios. This can mitigate negative consequences. The Ministry of Finance has an important coordinating role should a financial crisis arise. Norges Bank can contribute if there is a liquidity shortage by lending funds to banks against approved collateral.

International cooperation

The financial system operates to a great extent across national borders and there is broad international cooperation on regulation and supervision to promote financial stability. The Financial Stability Board (FSB) was established during the global financial crisis in 2008. The FSB is a collaborative body that monitors and makes policy recommendations for the global financial system. The FSB comprises the G20 countries and the most important international organisations and committees in this area.

The Basel Committee on Banking Supervision (BCBS) is the most important international body for the regulation and supervision of banks. Originally, the BCBS focused on raising the standards of banking supervision and improving the exchange of information between regulators in different countries regarding international banks. After a period, the Committee recognised that there was also a need for a common regulatory framework governing the level of banks' equity capital, and the so-called Basel framework was developed. Subsequently, the BCBS has proposed regulation relating to many aspects of banks' activities (see *Appendix 2: Capital and liquidity regulation*).

Similar collaborative bodies have now been established for insurance, the *International Association of Insurance Supervisors* (IAIS); securities markets, the *International Organization of Securities Commissions* (IOSCO); and for the payment system and other financial infrastructure, the *Committee on Payments and Market Infrastructures* (CPMI). These organisations all draft proposals for international rules applicable to their respective areas. In addition, important market participants have established collaborative bodies that draw up key market standards, eg the *International Swaps and Derivatives Association* (ISDA).

Several of the above-mentioned institutions are referred to as international standard-setters. They draft proposals for minimum standards for international rules in their fields. These rules can be incorporated into national legislation or they can remain a market standard that market participants must adhere to in practice in order to do business in the relevant area. The proposed rules are often introduced for both small and large banks in most countries. The EU regulatory framework also largely reflects international standards.

The framework conditions for Norway's financial system are determined based on the Agreement on the European Economic Area (EEA), which regulates Norway's relationship with the EU. Norway is a part of the EU single market for financial services through the EEA Agreement. This means that Norway has virtually the same financial legislation as EU countries.

An important task for standard-setters is to monitor and report on the implementation of standards by participating countries. In this connection, the International Monetary Fund (IMF) conducts regular reviews under its *Financial Sector Assessment Program* (FSAP) of countries' compliance with financial sector standards. Norway's most recent FSAP assessment was conducted in 2020 (see IMF).

(For more information on the evolution of international regulations, see "Endringer i bankreguleringen etter finanskrisen i 2008" [Changes in banking regulations following the financial crisis in 2008], *Economic Commentaries* 5/2017, Norges Bank (Norwegian only).)

1 Financial markets

Financial markets are markets in which financial instruments are issued and traded, where savers can invest in corporate equity and lend directly to various borrowers. The main groups of financial instruments are debt instruments (bond and short-term paper markets), equity (stock markets), foreign exchange (FX) and derivatives. For debt and equity there is both a primary market, where equity securities, or stocks, and bonds are sold to investors, and a secondary market for the purchase and sale of existing bonds and stocks. The marketplace, or trading venue, may be a stock exchange where bid (buying) and ask (selling) prices are submitted and cleared. This means that the buyer accepts the seller's ask price and the seller accepts the buyer's bid price. Once the trade is cleared, it can be executed. Most standardised instruments such as equities or government bonds are traded on a stock exchange. Many other instruments are not primarily traded on a stock exchange, but are traded either via alternative trading venues or bilaterally between buyers and sellers, called "over-the-counter" (OTC) trading. Corporate bonds, foreign exchange and derivatives are primarily traded OTC. (For further details, see box: **Turnover in securities: exchange-traded and OTC**.)

Financial markets are also important for distributing risk in the economy. When projects and businesses are funded by raising capital in equity and bond markets, risk is spread over many investors and lenders. This improves access to capital and the distribution of risk. Participants also use financial markets to manage risk through the purchase and sale of instruments featuring different kinds of risk. Money, FX and derivatives markets have important functions in that they redistribute liquidity and various forms of risk. These markets are also used for speculation in developments in macroeconomic variables and financial assets. This contributes to price formation in the market and is an element in the redistribution of risk. In markets with substantial turnover, new information is quickly reflected in prices for financial instruments. This gives important information to both savers and borrowers and can improve resource utilisation in the economy.

Activity in the markets and at trading venues is regulated by the authorities, albeit to a somewhat lesser extent than is the case for financial institutions such as banks and insurance companies. Read more in *Appendix 1: Regulation of financial markets and trading venues*.

1.1 Money markets

The money market comprises several types of financial markets in which participants can invest or borrow funds using financial instruments with maturities of up to one year. Participants use money markets primarily to manage their funding liquidity, ie the degree to which participants have the means to meet their payment obligations as they fall due (see box: **Liquidity**). The banking sector is the largest participant in the money market. The market for borrowing and lending between banks is called the interbank market and is a substantial part of the money market. Other participants, such as central and local governments and other businesses, also utilise money markets, primarily to issue Treasury bills and short-term paper. Norges Bank is a key participant in the money market.

The banking sector's most important instruments in the money market are unsecured interbank loans, primarily overnight loans, and secured loans in the form of FX swaps.

TURNOVER IN SECURITIES: EXCHANGE-TRADED AND OTC

Financial instrument trades can take place on organised trading platforms or through bilateral agreements, referred to as "over-the-counter" (OTC). A stock exchange is the form of organised trading platform that is regulated most extensively to ensure that relevant information is available to investors. Norway's stock exchange, Oslo Børs, is regulated by Finanstilsynet (Financial Supervisory Authority of Norway). Securities that are expected to be widely traded will usually be accepted for trading on a stock exchange. For a company to be listed, ie for its shares to be traded on a stock exchange, detailed information about the company and, if a bond is to be issued, information on the bond agreement, must be submitted. Once a company has been listed, it has an obligation to regularly provide updated information. This ensures that relevant information about all the securities traded on the stock exchange is available to investors. Securities listed on Oslo Børs can be traded through the exchange's electronic trading system, which shows updated bid and offer prices with the associated trading volumes. Securities prices are continuously updated based on actual trades. Although the great majority of trades on Oslo Børs are in equities, bonds are also issued and traded on the exchange. Listed securities may also be traded off-exchange.

There are electronic trading platforms that are not stock exchanges and that are subject to less stringent information and transparency requirements. These are often referred to as Multilateral Trading Facilities (MTFs). MTFs are generally owned and operated by banks or brokers to avoid paying transaction fees to a stock exchange. Some MTFs are almost as open about their operations as stock exchanges, while others provide little information regarding prices and trading volumes. MTFs that only provide minimal information are called "dark pools". MTFs primarily offer trading in equities that are also usually listed on an exchange. Parties to a trade will often agree to trade at the same price as the listed equity on the exchange. As a result, large trades can be executed on an MTF without affecting prices on the exchange. Incentives for trading in an MTF rather than on a stock exchange may include lower transaction costs or the desire to avoid showing one's hand by displaying an order in the market. The introduction of MiFID II has limited the volume of equities that can be traded in "dark pools".

In the simplest form of OTC trades, the buyer and seller contact each other directly to agree on a transaction. Since it can be difficult to find a counterparty, brokers are often used as intermediaries in these transactions. For securities with fairly high turnover, brokers provide indicative bid and offer prices. As a rule, trades cannot be made at these prices, and transactions are agreed upon by phone or instant messaging via a computer network. Most bonds are traded in this manner.

There are also markets for unsecured loans in the form of Treasury bills and short-term paper and secured loans in the form of repurchase agreements (repos).

Chart 1.1 is taken from Norges Bank's money market survey and shows daily borrowing and lending by instrument in April 2019 (see Money Market Survey on the Norges Bank website).

1.1.1 Money market participants

Participants in the money market are mostly banks. Fluctuations in banks' liquidity are primarily related to payment services, loan origination and maturity transformation (see

LIQUIDITY

The term liquidity is used differently in different contexts.

The **liquidity of an asset** means the ease with which it can be converted into money for the purchase of goods, services and other assets. Cash and bank deposits are money and thus the most liquid form of liquidity, while fixed capital such as housing is an asset that is relatively illiquid.

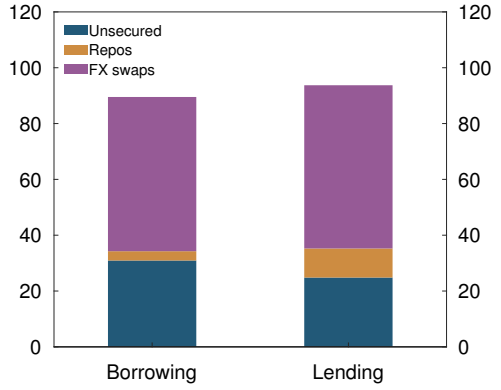
Funding liquidity means the degree to which a person or business has sufficient funds available to pay for goods and services or to service debt as it falls due. In practice, it is a question of the amount of cash and bank deposits, which for banks includes their deposits in Norges Bank, that is or can easily be made available. Funding liquidity is most often used to describe the possibility of obtaining funding at an acceptable price so that a business has sufficient funds to make payments and service debt.

Market liquidity means the degree to which it is possible to trade assets, such as securities, in the market without substantially influencing market prices. A market is considered liquid if it is possible to trade large volumes in a short period of time without causing substantial movements in market prices. Some markets are more liquid than others, but in most markets, liquidity varies over time. During financial crises, liquidity in many markets can dry up.

Central bank liquidity means banks' deposits in the central bank (central bank reserves). Central bank liquidity plays a key role in the setting of short-term market rates and the execution of payments in the economy.

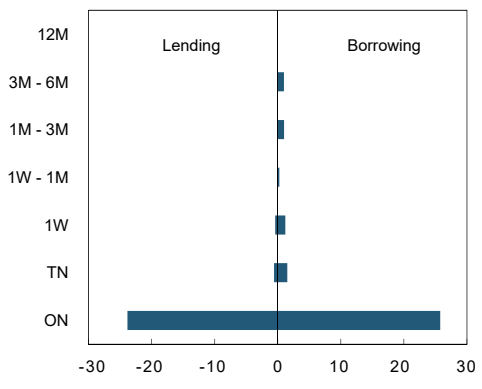
Section 2.3.1 *Banks' tasks*). Assume that a bank customer transfers an amount from his or her own account to the account of a recipient in another bank. The payer bank's liquidity will then be reduced as its deposit in Norges Bank is reduced. Conversely, the liquidity of the bank receiving the transfer will increase as its deposit in Norges Bank is increased. Banks use the money market to manage such liquidity fluctuations. Interbank

Chart 1.1 Lending and borrowing in the money market by instrument
Daily average. In billions of NOK. April 2019



Source: Norges Bank

Chart 1.2 Unsecured interbank lending and borrowing in the money market by maturity
Daily average. In billions of NOK. April 2018



Source: Norges Bank

loans comprise not only unsecured loans, but also secured loans such as repurchase agreements (repos) and FX swaps.

Insurance companies, finance companies, mortgage companies and local governments also trade in the money market when they need to borrow or invest funds for short periods. Insurance companies invest most of their funds in long-term securities, but they also make short-term investments in the money market in order to have the means to cover upcoming payments. In the private sector, money markets are primarily used by the largest companies, whose resources are large enough to utilise this market, at least as borrowers. Smaller participants can save in the money market by, for example, purchasing mutual fund units. The government is another major participant and uses the money market to meet its short-term funding needs by issuing Treasury bills. As the government holds its liquidity in its account at Norges Bank, the government only participates in the money market as a borrower.

Norges Bank is a key participant in the money market. It uses market operations to control the total quantity of central bank reserves in the banking system. Norges Bank offers standing deposit and lending facilities to banks as part of its liquidity management (see box: **Norges Bank's liquidity management and overnight lending rate**).

1.1.2 Unsecured money market instruments

Unsecured money market instruments are unsecured interbank loans, Treasury bills and other short-term paper. Trades in unsecured interbank loans and deposits are concentrated around the shortest maturities, while Treasury bills and short-term paper can vary in maturity up to a maximum of one year.

1.1.2.1 Interbank loans and deposits

Banks can borrow from and invest with each other in the unsecured interbank market. Most trades take place at very short maturities, particularly overnight (Chart 1.2).

If a bank has large net outgoing payments one day, but large net incoming payments the next, it can cover its short-term liquidity shortfall by borrowing in the interbank market. The bank will normally cover its more permanent financing needs with longer-term funding. This use of the interbank market explains why trades are concentrated around the shortest maturities. The interbank market is primarily used for banks' daily liquidity management. Its main function is as a safety valve, allowing banks to cover unexpected or short-term liquidity shortfalls at short notice.

1.1.3 Short-term paper and Treasury bills

Short-term paper refers to liquid debt securities with maturities of up to one year. The short-term paper market consists of a primary market where short-term paper is issued and a secondary market, where existing short-term paper can be resold. The government is the largest issuer in the short-term paper market, but banks, municipalities, municipal enterprises, mortgage companies and other private businesses also obtain short-term funding by issuing short-term paper. Local governments are the second largest issuers of short-term paper in NOK after the central government. Norwegian banks' issuance of short-term paper in NOK is limited because their short-term NOK needs can largely be met at lower cost in the FX swap market (see Section 1.1.4 *Secured money market instruments*).

Short-term paper issued by the government is referred to as Treasury bills, which are short-term government debt instruments. Treasury bills are issued as zero coupon securities with a maturity of up to one year. This means that these bills do not pay any

NORGES BANK'S LIQUIDITY MANAGEMENT AND OVERNIGHT LENDING RATE

The aim of liquidity policy is to keep the shortest money market rates close to the policy rate. Norges Bank achieves this by setting the terms for banks' loans and deposits in the central bank and by controlling the size of banks' total deposits in Norges Bank (central bank reserves).

Liquidity management systems referred to as corridor systems are very common internationally. In such a system, the central bank's lending and deposit rates form a corridor for the shortest money market rates in the interbank market. The policy rate is normally in the middle of this corridor, and the central bank manages the reserves in the banking system (banks' deposits in the central bank) to keep them at zero (or slightly above zero). A bank that has received a net inflow from other banks over the course of the day and has a positive account balance in the central bank lends reserves to banks that have had a net outflow over the course of the day and thereby have a negative account balance in the central bank. By the end of the day, (most) banks have account balances at zero and claims on other banks in the interbank market. A corridor system incentivises banks to trade reserves with other banks and not with the central bank.

In a so-called floor system, the central bank seeks to maintain an oversupply of central bank reserves in the banking system. This system drives the shortest money market rates down to banks' marginal deposit rate at the central bank, which then forms a "floor" for the shortest rates. (For more details on liquidity management systems in general, see "Liquidity management system: Floor or corridor?" *Staff Memo* 4/2010, Norges Bank, "Systemer for likviditetsstyring: Oppbygging og egenskaper" [Liquidity management systems: structure and characteristics], *Staff Memo* 5/2011, Norges Bank (Norwegian only) and "Penger, sentralbankreserver og Norges Banks likviditetsstyringssystem" [Money, central bank reserves and Norges Bank's liquidity management system], *Staff Memo* 5/2016, Norges Bank (Norwegian only).)

Norway's liquidity management system is a cross between a floor and a corridor system. Norges Bank seeks to maintain reserves at a given level within a target range. Each bank has a sight deposit quota at Norges Bank. Deposits below the quota are remunerated at the sight deposit rate (which is equal to the policy rate), while deposits in excess of the quota are remunerated at a lower rate, known as the reserve rate.

In Norway, as in many other countries, the government has an account at the central bank. Government outflows increase banks' deposits at the central bank. On Norges Bank's balance sheet, the government's deposits are reduced while banks' deposits increase. Correspondingly, government inflows reduce banks' deposits at Norges Bank. Thus, transactions over the government's account alter the quantity of reserves in the banking system and Norges Bank restores the balance using market operations, the most common of which are F-loans and F-deposits. F-loans are loans against collateral in fixed-rate securities with a given maturity. F-deposits are fixed-rate deposits with a given maturity. If the sight deposit rate is changed during the maturity of the operation, the bank's allotment rate will be changed accordingly from the same date as the change in the sight deposit rate. Market operations are necessary when government account transactions would otherwise have moved banks' deposits outside the target range.

Norwegian banks also borrow reserves from other banks overnight through the interbank market. A bank that has been a net recipient of reserves through the day and exceeds its quota will normally lend reserves to banks with negative account balances or deposits below the quota. The alternative is to deposit the reserves in excess of the quota at the lower reserve rate. Banks with net outflows of reserves through the day, and with negative account balances at the central bank, will want to borrow reserves from other banks. Otherwise, banks' negative account balances in the central bank will be made into overnight loans (called D-loans) and charged at Norges Bank's overnight lending rate for banks, the D-loan rate, which is 1 percentage point higher than the sight deposit rate.

As in a corridor system, banks have an incentive to redistribute reserves among themselves. The interest rate that banks pay each other overnight is referred to as the Norwegian Overnight Weighted Average (Nowa), which is normally close to the policy rate (Chart 1.3). The Nowa rate is the first point on the "yield curve" and the very first part of the "transmission mechanism", ie how the central bank's policy rate affects longer-term interest rates: short-term money market rates influence the interest rates facing households and businesses, which in turn affect decisions concerning consumption, investment and saving.

interest (coupon payments), but they are issued at a discount, ie the offer price is lower than the face value, and are redeemed at maturity. The difference between the issue price and the redemption price is the "interest payment". They are only issued in NOK and are listed on Oslo Børs. Norges Bank sells Treasury bills on behalf of the government in the primary market. The Treasury bills are sold by auction on Bloomberg's Auction System, where all the allotted bidders in the auction pay the same price (uniform price auction). Only selected banks, so-called primary dealers, are authorised to participate directly in the auctions. Trades in the secondary market for Treasury bills can take place either on electronic trading platforms, or when an investor contacts a primary dealer or other broker that deals in these securities. The primary dealers are obliged to quote binding bid and ask prices on the Bloomberg E-Bond trading system for a given minimum amount.

New Treasury bills are introduced on international money market (IMM) dates and mature on IMM dates in the same month a year later. Over the course of that year, the Treasury bill can be reopened to increase the volume outstanding. The maturity date will nevertheless always be a year after the bill was initially sold in the market. IMM dates are commonly used maturity dates for standardised money market products. IMM dates are the third Wednesday of March, June, September and December.

1.1.4 Secured money market instruments

FX swaps are the most commonly used secured money market instruments in Norway. Although significantly smaller, the market for repurchase agreements (the repo market) seems to be growing.

1.1.4.1 Repurchase agreements (repos)

In a repurchase agreement (repo), two parties agree to exchange securities for money for a given period. The agreement consists of two transactions with different settlement dates – one sale date and one repurchase date – which are agreed upon simultaneously. Upon entering into the agreement, one party relinquishes the securities in exchange for money (the sale). Once the agreement has reached maturity, the securities are returned to the initial seller, who simultaneously relinquishes a predetermined amount of money

(the repurchase). The buyer pays an implicit rate determined by the difference between the sale and repurchase price of the security.

Since repurchase agreements are loans where the lender receives securities as collateral, lenders are exposed to very limited risk. If the buyer, or borrower, should default when the agreement matures, lenders have access to the securities that were posted as collateral. In principle, all securities that can be traded in the fixed income market can be used in repurchase agreements. The amount that can be borrowed, however, depends on the quality and marketability of the security. An important difference between a repurchase agreement and an ordinary loan with collateral in the form of securities is that in a repurchase agreement the lender is the legal owner of the security in the period to the loan's maturity. The lender can make use of the collateral in the period until the repurchase agreement matures.

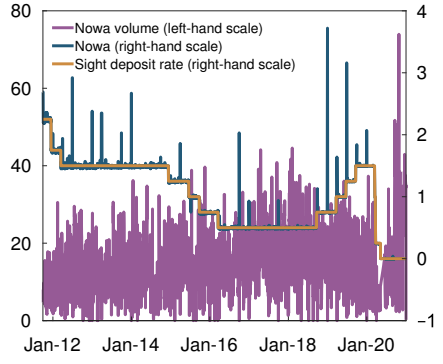
Although relatively small, the Norwegian repo market is growing. The largest banks are the primary participants. Most repurchase agreements are made with Norwegian Treasury bills, government bonds, and covered bonds as collateral (see box: **Secured funding**). Repurchase agreements are also made with foreign securities as collateral and so-called tri-party repos, in which the two parties entering an agreement allow a third party to manage the exchanges between them. Repurchase agreements with listed securities as collateral, such as Treasury bills, government bonds, and covered bonds, are registered on the stock exchange if one of the parties in the transaction is a member of the exchange. The trades themselves take place OTC.

1.1.4.2 Foreign exchange (FX) swaps

In an FX swap, two parties agree to exchange one currency for another for a given period (see box: **Derivatives**). By entering into an FX swap, a bank holding foreign currency and needing liquidity in NOK can swap the currency for NOK for a given period. An FX swap between two banks can also be regarded as a secured interbank loan. The FX swap market is different from the repo market in that the collateral received by the lender is in the form of another currency rather than in the form of securities. The parties to an FX swap exchange currency at the current FX market spot rate and agree to reverse the swap on an agreed date in the future at a rate agreed on today. This future rate is called the forward rate. The difference between the spot rate and the forward rate, known as the forward premium, expresses the interest rate differential between the two currencies during the life of the swap.

Chart 1.3 Nowa and reported turnover volume

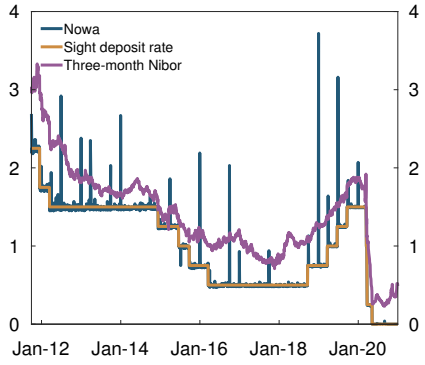
Nowa in percent. Volume in billions of NOK



Source: Norges Bank

Chart 1.4 Sight deposit rate and short-term money market rates

Percent



Source: Norges Bank

DERIVATIVES

Derivatives are contracts that derive their value from an underlying asset. Derivatives can thus be used to reduce or increase exposure to an underlying asset and are therefore useful in risk management. The basic types of financial derivative are forward contracts and options.

A **forward contract** is an agreement to buy or sell an asset at a specified future time at a price agreed on today. The two parties to a forward contract have symmetrical rights and obligations. No payments normally accrue upon entering into a forward contract. The forward price is the future delivery price, making the value of the contract equal to zero for both parties at the time the contract is entered into. Once the forward contract has been entered into, its value can be changed. The buyer of a forward contract will make a profit on the settlement date if the price of the underlying asset is higher than the contract price and will take a loss if it is lower. The selling party will have the opposite exposure. If a forward contract is used to hedge an underlying position for the risk of losses due to price changes, the value of the forward contract will move in the opposite direction from the value of the underlying position, resulting in neither loss nor profit.

A **future** is a standardised forward contract traded on the stock exchange.

A **Forward Rate Agreement (FRA)** is a forward contract with an agreed future rate of interest, for example the six-month interest rate in three months' time. FRAs are settled on the same day the future interest rate period begins, on the basis of the difference between the agreed interest rate and a selected reference rate. As a rule, the contracts start on IMM dates.

A **swap** is a contract in which two parties exchange cash flows. The two most common types are interest rate swaps and FX swaps. Parties to interest rate swaps usually exchange a fixed interest rate for a floating exchange rate. For example, a bank can use interest rate swaps to exchange fixed rate interest payments on bonds for floating rate payments. Its counterparty in the swap pays the bank's fixed rate interest payments to its bondholders, while the bank pays the floating rate to the counterparty. In an FX swap, the parties agree to exchange specified amounts of two different currencies at the current rate (the spot rate) and exchange these amounts back at a pre-agreed rate (the forward rate) when the agreement expires. The difference between the spot rate and the forward rate, the so-called forward premium, expresses the interest rate differential between the two currencies over the life of the contract. FX swaps are used, for example, by banks to exchange bond funding in foreign currencies for NOK. There are also combined foreign exchange and interest rate swaps, referred to as "cross-currency basis swaps".

An **option** is a contract that gives one party the right, but not the obligation, to buy (call option) or sell (put option) an asset at an agreed price (the strike price) on or before an agreed future date. The other party is obligated to fulfil the transaction if the option is exercised. The buyer pays the party selling the option a remuneration, or premium. The premium expresses the option's market value when the contract is entered into, which reflects its market value today and the value of potential future gains. The value of the option will vary according to the value of the underlying asset. The option will be exercised if this is profitable for its owner. A call option is exercised when the value of the underlying asset is higher than the strike price, while the put option is exercised when the value of the underlying asset is lower than the strike price. In both instances, the

option is said to be "in the money". By buying an option, the investor's potential loss on the investment in the underlying asset is limited to the option premium paid to the party selling the option, while fully preserving the potential for profit. A distinction is made between options that can be exercised at any time during the life of the option (American options) and options that can only be exercised at maturity (European options).

A **credit default swap** (CDS) is a financial contract to insure the issuer of a bond or a bond index against default. The seller of a CDS will compensate the buyer if the underlying bond defaults. The price of a CDS contract thus provides some indication of how the market assesses the likelihood of default.

The FX swap market is the segment of the Norwegian money market with the highest turnover. It is an OTC market, and its participants are largely major banks that rely heavily on foreign credit. Smaller banks largely use the unsecured interbank market to manage short-term liquidity fluctuations.

1.1.5 Money market reference rates

A reference rate is an interest rate that is used as a starting point for the pricing of other financial instruments. Reference rates play a critical role in the global financial system. These interest rates are linked to large sums of money through various financial products and financial contracts. Money market rates are frequently used as reference rates.

In 2011, in collaboration with Finance Norway, Norges Bank began gathering and registering data on unsecured interbank lending in the overnight market. Daily transaction volumes in 2020 averaged NOK 18.5bn (Chart 1.3). The weighted average of interest rates on these trades is called the Nowa rate (Norwegian Overnight Weighted Average). On 1 January 2020, Norges Bank took over as administrator of Nowa. It is published daily on the Norges Bank website. Nowa has on average been the same as the interest rate on banks' deposits in Norges Bank (sight deposit rate) since it was established (Chart 1.4).

The most used reference rate in Norway is Nibor (Norwegian interbank offered rate). Under the Nibor framework in force from 1 January 2020, the rates submitted by the individual panel bank shall reflect the interest rates the bank would charge for loans in NOK to a leading bank that is active in the Norwegian money and foreign exchange market. Six banks provide a daily quotation of the rate for maturities from one to six months. Based on the six banks' submitted rates, Nibor is calculated as an average of the middle four observations for each maturity (see the Norske Finansielle Referanser AS website). (For more details on Nibor, see "Nibor, Libor and Euribor – all IBORs, but different", *Staff Memo* 2/2019, Norges Bank, "A Decomposition of Nibor", *Economic Commentaries* 3/2015, Norges Bank, *and* "What drives the risk premium in Nibor?", *Economic Commentaries* 10/2016, *Norges Bank*.)

Three-month and six-month Nibor are the most commonly used reference rates for other financial products. Very few actual unsecured trades between banks are made at these maturities. In the unsecured interbank market in Norway, most of the activity is at maturities of no more than a few days. The most important reference rates in other countries, such as Euribor for EUR and Libor for USD and GBP, are also indicative rates. Setting reference rates for unsecured loans therefore entails judgement on the part of the banks.

The G20 countries, via the Financial Stability Board (FSB), launched an initiative to reform interest rate benchmarks when attempts to manipulate global reference rates were uncovered and there was a decline in activity in the unsecured interbank market following the financial crisis. After consultation with the financial industry, Norges Bank has established a working group onalternative reference rates for the Norwegian krone. (For more details, see Working group on alternative reference rates (ARR).) In 2019, the group published a recommendation to use a reformed version of Nowa as an alternative reference rate for the Norwegian krone. In 2020, the working group made recommendations for market conventions for Nowa and fallback solutions in the event Nibor ceases and for market conventions for financial products using Nowa as a reference. In addition, the group is working to establish an OIS market linked to Nowa.

1.1.6 Interest rate derivatives market

Interest rate derivatives are widely used to hedge the risk of interest rate fluctuations. Banks are important participants in this market. One reason is that banks often pay a fixed interest rate on their bond debt, while interest rates on bank lending to households and businesses are primarily floating rates, which may, for example, be linked to Nibor, which is also a floating interest rate. If the Nibor rate falls, there is a risk that interest income will be lower than interest expense. Banks can hedge the effects of such interest rate changes by entering into an interest rate swap with Nibor as the reference rate (see box: **Derivatives**). Under the terms of the swap, banks make interest payments at the Nibor rate and receive interest payments at a fixed interest rate (the swap rate), thereby hedging the risk of fluctuations in the Nibor rate.

Interest rate derivatives can also be used for speculation in the fixed income market. The fixed rate (swap rate) reflects market expectations of the average Nibor over the life of the swap. A participant who expects Nibor to rise by more than the increase priced into the fixed rate can buy an interest rate swap in order to pay the fixed rate (swap rate) and receive payments at the Nibor rate. If the participant's expectations are realised, the trade will be profitable.

Forward rate agreements (FRAs) are entered into primarily to take positions based on the expected three-month Nibor rate on a future date. A buyer of an FRA contract with three-month Nibor as the reference rate commits to paying the fixed FRA rate in exchange for three-month Nibor on a given future date (often an IMM date). If three-month Nibor rises by more than the increase priced into the FRA rate, parties that have agreed to pay the FRA rate stand to profit in the same way as if they had entered into an interest rate swap.

1.1.6.1 Participants in interest rate derivatives markets

Participants in interest rate derivative markets can be divided into two groups: market makers and end-users. Market makers are investment firms, including banks, offering to buy from or sell derivatives to end-users. Market makers make their profit from the difference between bid and ask prices. The difference between bid and ask prices reflects the risk taken on by market makers in setting binding prices.

End-users include financial institutions, businesses, the public sector, private individuals and institutional investors. An institution can be both market maker and end-user. This is the case for many of the banks that, in addition to setting prices, use derivatives to manage their risk or to take positions based on their perception of interest rate developments.

The government can use interest rate swaps as a part of government debt management. The average time to refixing of the government's debt portfolio (ie when an instrument is subject to a new interest rate) is reduced if the government enters into agreements to receive payments at a fixed interest rate and pay a floating interest rate. One of the reasons for using interest rate swaps is that reducing the average time to refixing can result in lower interest costs.

1.1.6.2 Trading venues and turnover

Interest rate derivatives can be traded both over-the-counter (OTC) and on a stock exchange, but in Norway the majority are OTC trades. OTC derivative can be tailored or standardised. Standardised contracts, which are often tied to IMM dates, generate the largest turnover.

The most recent triennial survey of derivatives and FX market activity conducted by the Bank for International Settlements (BIS) shows that total turnover in OTC interest rate derivatives in the Norwegian market in terms of underlying nominal value in April 2019 was USD 122bn. Interest rate swaps and forward rate agreements (FRAs) accounted for USD 47bn and USD 75bn, respectively, of the total. No activity was reported in the interest rate option market. (For more information on the BIS survey, see the Norges Bank website.)

1.2 Bond market

Bonds are standardised loans with original maturities of more than one year. A bondholder is entitled to repayment of the amount paid for the bond (face value, or principal), as well as interest at a predetermined fixed rate (coupon rate). The principal may be repaid in instalments on the coupon payment dates or, more commonly, at a predetermined time (the bond's maturity date).

The bond market is an organised market for issuing and trading bonds and can be divided into a primary and a secondary market. The primary market is a marketplace for participants needing long-term loans and investors seeking a vehicle for long-term saving. Bond issuers borrow money in the primary market by issuing bonds, which are bought by investors. Banks, mortgage companies, the government and businesses are the largest issuers in the bond market. The largest investor categories include life insurance companies, pension funds, mutual funds and banks. Bonds are marketable, and previously issued bonds can be resold between investors in the secondary market. The pricing of bonds that are regularly traded in the secondary market is an important source of information about the risk associated with the issuer. (For further details, see box: **Bond yields and bond risk premiums**.)

In Norway, standardised loans with maturities shorter than one year are called short-term paper or Treasury bills. The short-term paper market is discussed in greater detail in Section 1.1 *Money markets*.

1.2.1 Key concepts in the bond market

There are many different types of bond with varying maturity, yield and priority in the event of bankruptcy. This section provides a short review of some key concepts in the classification of bonds.

1.2.1.1 Maturity

Most bonds have maturities of one to ten years, but some have up to 20 to 30 years. Outside Norway, so-called "ultra-long" government bonds, with maturities of 40 to 100

BOND YIELDS AND BOND RISK PREMIUMS

A bond yield is the compensation an investor demands to lend money to the issuer. In addition to expectations of future yields, the yield can contain risk premiums to compensate investors for various types of risk. The risk premium will usually be divided into maturity, credit and liquidity risk premiums. The size of the risk premiums reflects the level of uncertainty and how much compensation investors will demand to take on such uncertainty. (For more information on risk premiums in the Norwegian bond market, see also "Renteforventninger og betydningen av løpetidspremier" [Yield expectations and the importance of maturity premiums], *Penger og Kreditt* 1/2003, Norges Bank (Norwegian only) and "Risikopremier i det norske rentemarkedet" [Risk premiums in the Norwegian bond market], *Penger og Kreditt* 3/2005, Norges Bank (Norwegian only).)

A maturity premium compensates the investor for the risk of unfavourable developments in interest rates while he or she holds the bond. For example, an investor who has purchased a two-year fixed-rate bond would be exposed to price risk/interest rate risk if the bond has to be sold in a year's time. A maturity premium can also arise because investors tie up liquidity over long periods when they invest in fixed-income securities with long maturities. To compensate for this, investors demand a positive liquidity premium to invest in fixed income instruments with longer maturities. A rising yield curve does not therefore necessarily reflect market expectations of higher short-term yields in the future. There are also other theories seeking to explain maturity premiums in the bond market. If investors have clear preferences for certain maturities, maturity premiums can vary in the different maturity segments.

A credit/default premium compensates the investor for losses on a bond if the issuer fails to make the agreed interest or principal payments.

A liquidity premium compensates the investor for the risk that selling a bond prior to maturity without reducing the price may prove to be more difficult than expected. Since uncertainty concerning future developments normally tracks the rise in bond maturities, bonds with longer residual maturities normally have higher maturity, credit and liquidity premiums than corresponding bonds with shorter maturities.

Government bond yields and money market rates are widely used as reference rates for other bonds. In the Norwegian market, the most commonly used reference rate is the three-month money market rate Nibor. (For more information on reference rates, see "Om langsiktige referanserenter i det norske obligasjonsmarkedet" [On long-term reference rates in the Norwegian bond market], *Penger og kreditt* 3/2004, Norges Bank (Norwegian only).) If the reference rate is a risk-free rate, the risk premium will be the investor's compensation for choosing a high-risk investment rather than a risk-free alternative.

A regularly traded bond provides an ongoing pricing of the risk associated with the bond, and bond yields are therefore an important indicator of risk and required rates of return in the market.

years, have become somewhat more common. The term to maturity is decided by the lender based on the demand for financing. In determining a bond's maturity, the issuer will also take account of the investor's desired maturity. Bonds with redemption rights contain clauses that provide either the issuer or the investor with the right to require

the bond to be redeemed before the maturity date. An issuer with the right to redeem the bond can choose to repurchase the bond from the investor at an agreed price. The redemption right for the bondholder provides a corresponding right to sell the bond back to the issuer at a price agreed upon in advance.

1.2.1.2 Interest rate

Bonds that regularly pay interest on their face value are called coupon bonds. Bonds that do not pay interest over the life of the bond are called zero-coupon bonds. When issued, the price of a zero-coupon bond is lower than the face value of the bond if the level of interest rates in the economy is positive, while the bondholder receives the bond's face value at maturity. Zero-coupon bonds are common internationally but less so in Norway. The most common bonds in Norway are a type of coupon bond called bullet bonds. Bullet bonds pay regular interest on fixed dates in the period to maturity and repay the entire principal at maturity.

The coupon rate that is paid during the life of a bond can be either fixed or floating. Floating rate bonds, referred to as floating rate notes, pay a short reference rate (typically three-month Nibor) plus a fixed risk premium (see box: **Bond yields and bond risk premiums)**. Coupon rates on such bonds vary in line with the level of interest rates in the economy. A fixed rate bond pays a fixed nominal rate throughout its term. For such bonds, the interest rate at the time of issue will reflect issuer and bondholder expectations of the general level of interest rates and their compensation for the risk associated with the specific bond. Floating rate bonds are more common than fixed rate bonds in Norway, but all government bonds are fixed rate. Some bonds feature coupons that can be refixed over the life of the bond according to specified rules.

1.2.1.3 Priority

A bond is a liability item on the issuer's balance sheet. In the event of bankruptcy, different bonds have different priority for repayment. A bond's priority influences the degree of compensation investors will demand to invest in the bond.

Secured bonds are bonds backed by collateral in, or preferred claims to, specified asset items on the issuer's balance sheet. In Norway, for example, covered bonds have a preferred claim on a defined selection of high-quality assets. Covered bonds are used extensively in the banking system to finance housing mortgages (see box: **Secured funding**). Preferred claims or collateral in the form of specific assets reduce the risk that investors will not be repaid.

Unsecured bonds are called senior bonds. These are not backed by collateral in the form of specific assets, but represent a general claim on the issuer.

Bonds with lower priority than senior bonds can be described as *subordinated loan capital*. Subordinated loan capital comprises various kinds of bonds. Non-preferred senior debt has the highest priority, followed by subordinated debt and finally preferred capital securities, including contingent convertible bonds (CoCos). Equity capital must absorb losses first if the borrower becomes insolvent, after which subordinated loan capital follows in the priority ranking above.

Convertible bonds allow or require bondholders to convert bonds into shares in the same company at an agreed price. The criteria for when conversion can take place vary for different bonds. In recent years, CoCos have been widely discussed. These are bonds issued by banks that are contractually written down or converted into equity if the issuer's capital levels fall below a predetermined level. With these kinds of bonds, bondhold-

SECURED FUNDING

Some issuers offer guaranteed bonds. These bonds are considered particularly safe because the guarantor must pay the debt should the issuer default. The safest guaranteed bonds are backed by the government. Other bonds can include provisions whereby bondholders have security interests in the assets of the issuer or priority over holders of other bonds from the same issuer in the event of bankruptcy.

Covered bonds (OMFs): OMFs are the Norwegian version of bonds referred to internationally as covered bonds. Covered bonds have for many years played an important role in residential mortgage funding in a number of European countries, including Sweden, Denmark and Germany. Covered bonds (OMFs) were introduced in Norway in 2007. (For a further discussion of Norwegian covered bond regulations and the covered bond market in Norway, see "Norwegian covered bonds – a rapidly growing market" , *Economic Bulletin* 1/2010, Norges Bank.)

A covered bond provides an investor with a preferred claim on a defined pool of high-quality assets on an issuer's balance sheet. Norwegian covered bonds are subject to regulations with strict requirements as to who can issue such bonds and the quality of the underlying collateral. Only mortgage companies with special authorisation can issue covered bonds, and these companies are primarily owned and controlled by the banks. Approved collateral includes residential mortgages with a maximum loan-to-value (LTV) ratio of 75%, loans for commercial real estate and holiday homes that are within 60% of the property's value, loans to or guaranteed by certain governments and authorities, and certain derivatives. The cover pool for Norwegian covered bonds mostly comprises residential mortgage loans. Under the so-called balance sheet requirement, the value of the cover pool must always equal 102% the value of the covered bonds outstanding, also referred to as overcollateralisation. The individual mortgage company is responsible for ensuring that its cover pool always meets the requirements. Mortgage companies commonly over-comply with the balance sheet requirement by posting more collateral than the value of outstanding covered bonds. Overcollateralisation provides investors with an additional buffer against a reduction in the value of the cover pool, for example in the event of a fall in house prices.

Securitised bonds (asset-backed securities (ABSs): Securitisation means that the issuer sells certain assets to a legally separate special purpose vehicle (SPV), which funds the purchase by issuing ABSs in the market. Unlike covered bonds, ABSs are normally not subject to regulations defining the kind of assets that are eligible as collateral. The types of asset included in the cover pool will vary and are specified in the contract. In contrast to issuers of Norwegian covered bonds, ABS issuers are normally not required to maintain the value of the cover pool. The credit risk of the cover pool is therefore fully transferred to the investors. Nor are SPVs subject to supervision or capital requirements as is common for financial sector undertakings. ABSs are divided up based on quality and maturity into so-called tranches with different risk profiles. The tranches with the highest risk, but also the highest interest rates, must absorb losses first. Investors can adjust their risk profiles by the tranches they select. Securitisation is widespread in mortgage financing in countries such as the US and the UK, while covered bonds are more prevalent in most European countries.

Before covered bonds were introduced in Norway in 2007, senior bonds were banks' most important source of long-term wholesale funding. The volume outstanding of senior bonds has fallen since 2007, in pace with the emergence of covered bonds in mortgage financing. Senior bonds are, however, still an important source of funding for lending that does not qualify for the issue of covered bonds. Senior bonds are primarily bullet bonds with floating interest rates.

ers risk incurring losses before equity capital is fully depleted. (Read more about CoCos in *Staff Memo* 19/2014, Norges Bank.)

Bonds can also be categorised according to the projects they finance. Green bonds are an example of loans that finance environmentally friendly projects. Oslo Børs has a separate list for green bonds. Projects are subject to an independent assessment before they can be listed on Oslo Børs' green bonds list. Globally, there are a number of different frameworks for classifying green bonds.

1.2.2 Norwegian bond issuers

The Norwegian bond market consists of bonds issued under Norwegian legislation. Issuers in the bond market are generally the same as in the money market. The largest issuers in the Norwegian bond market are the government, the banking sector and non-financial institutions (businesses) (Table 1.1). Local governments also obtain funding to some degree by issuing bonds.

1.2.2.1 The central government

The central government is the largest single issuer in the Norwegian bond market. The bonds it issues are called government bonds. The government also has Treasury bills outstanding, which are described in greater detail in Section 1.1 *Money markets*. Government bonds are issued in NOK with a fixed coupon rate paid annually. The bonds are bullet bonds, ie the principal is repaid at maturity.

By comparison with other countries, the Norwegian government bond market is small. This is because the Norwegian government's borrowing requirements are limited due to high petroleum revenues. Governments normally borrow money to cover budget deficits and to strengthen their foreign exchange reserves. The Norwegian government

Table 1.1 Issuer categories in the Norwegian bond market. Volumes outstanding at year-end, in billions of NOK

	2015	2016	2017	2018	2019	2020
Banks and mortgage companies	772	830	857	915	937	1060
Central government	338	383	390	405	404	490
Local government	83	90	99	104	120	133
Norwegian non-financial enterprises (businesses)	268	272	305	321	323	363
Other countries	248	268	284	296	323	351
Other	16	19	24	22	23	24
TOTAL	**1 725**	**1 862**	**1 959**	**2 064**	**2131**	**2422**

Source: Statistics Norway

NORWEGIAN BANKS' AND MORTGAGE COMPANIES' BOND FUNDING ABROAD

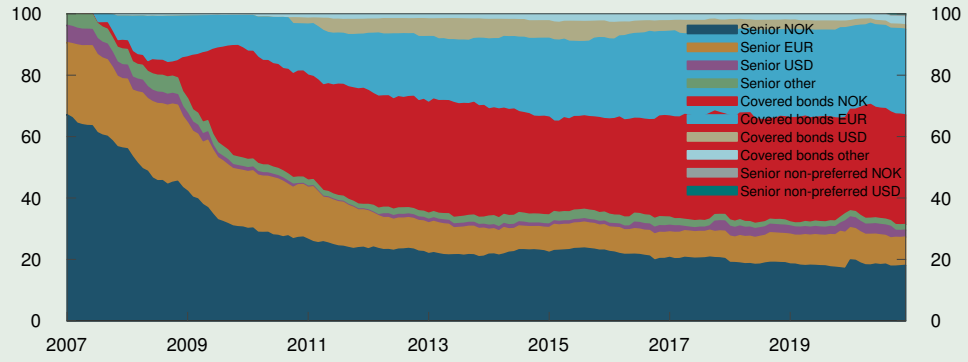
Norwegian banks and mortgage companies obtain a substantial share of their bond funding in foreign currency. At end-2020, approximately 50% of bond funding in Norway was issued in a foreign currency (Chart 1.A). Most of the bonds are issued in EUR, but the banks also issue bonds in other currencies, including USD, SEK, CHF and GBP. Mortgage companies sell large volumes of covered bonds in foreign markets (see box: **Secured funding**).

Some of the foreign currency funding obtained by Norwegian banks is used to finance assets in the same currency. The remainder is converted and primarily used to finance lending in NOK. To conduct this conversion, banks utilise derivatives called foreign exchange (FX) swaps and interest rate swaps, (see box: **Derivatives**). Banks use FX swaps to exchange FX funding for NOK today, while agreeing to reverse the transaction at an agreed time in the future. This provides banks with the NOK they require and ensures that the FX will be returned in time to pay back the bondholder at maturity. Banks use interest rate swaps to exchange the interest payments on fixed rate bonds for floating interest rate payments. Floating interest rates on funding reduces banks' risk, as most loans offered by banks carry floating interest rates.

Such FX and interest rate swaps can either last for the life of the bond or banks can roll over a series of shorter swaps. Covered bond mortgage companies utilise combined interest rate and FX swaps, called cross-currency swaps, which last for the life of the bond and are thus fully secured until maturity.

(For a more detailed review of the banking system's bond funding abroad, see "Norwegian Banks' foreign currency funding of NOK assets", *Staff Memo* 2/2014, Norges Bank.)

Chart 1.A Bond debt of Norwegian banks and covered bond mortgage companies
By currency and type of bond. Percent



Sources: Bloomberg and Stamdata

has a positive net foreign asset position, but still needs a liquidity reserve for daily payments. The government also borrows to fund lending and provide capital injections for state banks and other government lending schemes. The government lending schemes that are funded by issuing government debt include the Norwegian State Education Loan Fund, the Norwegian State Housing Bank, the Norwegian Public Service Pension Fund residential mortgage programme and Export Credit Norway.

Government bonds are claims on the government and the credit risk associated with these bonds is considered to be very low. Government bonds are also typically liquid, ie they can easily be sold without substantially affecting the market price. Government bonds therefore offer lower yields than corporate bonds. In many countries, government bond yields play an important role in the economy as reference rates for the valuation of other bonds and financial instruments (see box: **Bond yields and bond risk premiums** in Section 2). In Norway, the government seeks to distribute bonds across different maturities to provide reference rates for government bonds with maturities up to ten years, thereby contributing to the efficiency of the financial market.

1.2.2.2 Local governments

Norwegian municipalities and counties are a smaller issuer category in the Norwegian bond market. The municipalities also borrow substantially through Kommunalbanken, which primarily obtains funding in bond markets abroad.

1.2.2.3 Banks and mortgage companies

The banking sector is comprised of banks and bank-owned mortgage companies and is the largest issuer category in the Norwegian bond market. The volume of bonds outstanding from this sector was around half of the total volume outstanding in the market. A distinction is usually made between bonds that are secured on banks' assets and those that are not. Bonds that are not secured can be further classified based on their prioritisation (subordination) in the event the bank must be wound up or in any other way becomes subject to crisis management measures implemented by the authorities. Norwegian banks and mortgage companies also raise substantial funding in foreign bond markets (see box: **Norwegian Banks' and mortgage companies' bond funding abroad**).

The bond market provides long-term funding for banks and mortgage companies with maturities that more closely match the maturities of their loans to households and businesses. In a global context, the Norwegian banking system has a comparatively high share of bond funding.

Banks have established specialised mortgage companies that have taken on some of their residential and commercial mortgages. These mortgage companies issue covered bonds backed by these mortgages. (For further details, see box: **Secured funding**.) At end-2020, the volume outstanding in the market for Norwegian covered bonds was just over NOK 700bn, or approximately 30% of the Norwegian bond market as a whole. Most banks jointly own mortgage companies with other banks, while the largest banks own their own mortgage companies. Issuing covered bonds via jointly owned mortgage companies means that smaller banks also have access to a larger funding market. Most covered bonds in the Norwegian market are issued at a floating rate, as most residential mortgages funded by the covered bonds are floating rate loans.

1.2.2.4 Non-financial enterprises (businesses)

For non-financial enterprises, bonds are an alternative to bank loans. Most Norwegian businesses are too small to issue bonds, and nearly all credit to businesses is channelled via banks. In recent years, however, an increasing number of businesses have obtained

funding in the Norwegian bond market, and there has been an increase in the volume of bonds outstanding (Table 1.1). Norwegian regulations relating to the issuance of bonds are more concise and standardised than they are in many other countries, which has probably facilitated access to the Norwegian bond market for a greater number of small Norwegian firms and also some foreign businesses.

Businesses can have various motives for obtaining funding in the bond market. In some instances, an enterprise can secure more favourable funding conditions in the market than through a bank, while in other cases the bond market provides funding opportunities for businesses that are not able to obtain bank loans.

Previously, the Norwegian bond market was primarily used by enterprises in the power sector. Sectors such as oil, gas and shipping now account for substantial shares of the volume of bonds outstanding. Today, a substantial number of bonds in the Norwegian bond market are issued by businesses with high credit risk, known as high-yield bonds, also called junk bonds. At end-2020, high-yield bonds accounted for just under half of the volume of corporate bonds outstanding. High-risk enterprises include a number of foreign issuers. Since some businesses' revenues are in foreign currency, a large share of these bonds is also denominated in currencies other than NOK, particularly USD.

Fixed rate bonds are more common in the corporate bond market than in the bank bond market. Fixed coupon payments provide businesses with more predictability. Asset-backed bonds are relatively common among businesses, particularly in the real estate, oil, gas and shipping sectors, where buildings, ships, oil rigs and other fixed assets serve as collateral.

1.2.3 Bond investors

The largest investor categories in the Norwegian bond market are life insurance companies, pension funds, banks and mutual funds (Table 1.2). Foreign investors are the dominant category in the government bond market and, compared with other countries, the share of bonds held by foreign investors is high in Norway.

Life insurance companies and pension funds have long-term obligations and have traditionally invested in bonds with long maturities and low credit risk. These participants are therefore substantial investors in the government bond, covered bond and municipal bond markets, although they also purchase bonds issued by businesses with low credit risk. In many cases, bonds are held to maturity. In recent years, the government

Table 1.2 Investors in the Norwegian bond market. Holdings at year-end, in billions of NOK

	2015	2016	2017	2018	2019	2020
Banks and mortgage companies	397	453	479	542	536	734
Central government	92	106	109	98	91	120
Mutual funds	241	255	278	288	303	324
Life insurance companies and pension funds	350	380	396	402	396	411
Non-life insurance companies	72	62	65	61	59	60
Other countries	487	519	548	592	672	699
Other	85	87	84	82	73	74
TOTAL	**1 725**	**1 862**	**1 959**	**2 064**	**2131**	**2422**

Source: Statistics Norway

bond and covered bond holdings of life insurance companies and pension funds have fallen. This may be related to these investors' nominal required rate of return, which has been higher than the current low yields on government bonds and covered bonds. (Read more in Section 2.6 *Insurance companies* and Section 2.7 *Pension funds*)

Banks also hold marketable government bonds, covered bonds and municipal bonds mostly as a buffer against liquidity outflows, so that they can sell some of these liquid holdings in the market in the event of a liquidity shortfall. Banks' holdings of government bonds and covered bonds have increased in recent years, reflecting new regulatory requirements for the composition and size of banks' liquidity portfolios. Both government bonds and covered bonds are among the securities that have been approved as liquid assets under the Liquidity Coverage Ratio (LCR) requirement. (Read more in Section 2.3.6 *Liquidity regulation*.)

Mutual funds manage savings on behalf of their customers. The kind of securities the individual fund invests in depends on the kind of savings product they sell to their customers. Some pension funds only invest in government bonds, while others buy high-yield bonds. Mutual funds are the largest investor category in the bank bond market, and they also buy covered bonds and municipal bonds. (Read more in Section 2.8 *Mutual funds*.)

1.2.4 Primary bond market

The market for issuing bonds is called the primary market. It is a trading venue where participants with long-term borrowing needs can meet those seeking long-term investment. Bonds are issued by means of what is known as a book-building process or through private placements. Government bonds are also issued at auctions. Issuers can increase the volume outstanding of a bond issue a number of times in the primary market. Such increases are called tap issues or reopenings.

1.2.4.1 Auctions

Government bonds are usually issued by usually issued in uniform price auctions on Bloomberg's auction platform. In uniform price auctions, all the successful bidders in an auction pay the price quoted by the lowest bidder, unlike multi-price auctions, where bidders pay the price they submitted. In the auctions, bidders submit bids for the quantity they want to invest (volume) and the price they are willing to offer. A high price means a low yield for the government. The bids are ranked in order of price, from highest to lowest.

Government bond auctions were previously open to anyone. Since 2006, only selected banks, called primary dealers, are authorised to participate directly in the auctions. The government has entered an agreement with the primary dealers giving them the exclusive right and duty to participate in government bond auctions. They are, however, not obligated to deliver a specific bid volume per auction. The primary dealers accept bids on behalf of customers wishing to invest in the Norwegian government. Alternatively, primary dealers can buy the securities themselves and then resell them to interested investors in the secondary market.

Norges Bank manages Norway's government debt under a mandate from the Ministry of Finance. Auction dates and estimated borrowing volumes are regularly announced by Norges Bank in order to attain lower borrowing costs for the government, reduce uncertainty among investors and promote transparency in the market.

1.2.4.2 Book-building process

Bonds are often issued through what is referred to as a book-building process. Book building begins with an issuer in need of funding. This issuer contacts one or more underwriters. Issuers normally indicate the amount of funding they need and the price they are willing to pay. The underwriter assists the issuer in preparing the bond issue. The underwriter contacts potential investors and "builds a book" in which investors indicate the amount they want to buy and the price they are willing to pay. A single bond can involve multiple investors. The issuer can adjust the volume and price of the bond depending on demand in the market. Bonds are commonly oversubscribed, but when they are undersubscribed, the underwriter may be obliged to buy the difference between what the issuer wishes to sell and the other investors wish to buy. The underwriter can also offer derivatives to issuers and investors so that they can alter the fixed rate or convert to another currency. The entire process is normally conducted over a short space of time and the issuer pays the underwriter for these services. Issuers often advertise bond issuances in advance. This is especially common if the issuer is not known to the investors.

1.2.4.3 Private placements

Smaller bonds can be issued through what are referred to as private placements, where the bonds are sold to a few investors without advertising. In many cases, there is only one investor who buys the entire placement and who may have initiated the transaction. In such cases, the issuer will often adapt the bond's size, maturity and other terms to suit the investor. An issuer may prefer a private placement to market funding in a turbulent market or because the price will generally be lower when there is an investor who wants a special issue.

1.2.5 Secondary bond market

Some investors buy bonds to hold to maturity, while others will be interested in the possibility of reselling the bonds to another investor before they mature. The market where investors purchase bonds (and securities in general) from other investors is called the secondary market.

There are different forms of bond trading. Listed bonds in Norway are available on the Oslo Børs electronic system for direct trading between investors. This form of trading is not widely used. A more common form is over-the-counter (OTC) trading, where buyers and sellers contact one another. A bond broker often acts as intermediary for these trades and helps investors find counterparties for the transaction. Brokers can themselves also act as counterparty until they find another investor, a process referred to as market-making. Buyer and seller both submit ownership transfer information to the Norwegian Central Securities Depository (VPS), which checks the information for accuracy. Trades are normally settled two days after they have been reported to the VPS. (Read more in Section 3.3 *Securities settlement (VPO)*.)

Bonds that are expected to be widely traded in the secondary market are often listed on the stock exchange. Bonds listed on the exchange can also be traded electronically on the exchange's electronic trading platform. Some investors require the bonds they invest in to be listed on the exchange. Listing provides issuers with access to a wider investor base. It can also improve the liquidity of the securities, leading to lower liquidity premiums for issuers. (Read more on liquidity premiums in box: **Bond yields and bond risk premiums**.) Bonds can also be registered in alternative trading venues, such as Oslo ABM (Alternative Bond Market), which is subject to less extensive reporting requirements.

1.2.5.1 Secondary government bond market

The primary dealers are obligated to quote firm bid and ask prices for a minimum volume of all the government bonds outstanding on the Bloomberg E-Bond trading system[1]. Primary dealers thus act as government bond market makers. This improves liquidity in the government bond market and ensures that updated information on effective government bond yields is available at all times. Liquidity and reliable information are important for government bond yields to function as reference rates and can reduce the government's borrowing costs. Most are agreed upon directly between the trading parties. Primary dealers can borrow bonds from the government in order to be able to quote ask prices at any given time. The government can lend government bonds to primary dealers on request for up to a week at a time. The government has its own stock of all its securities for this purpose. Government securities trading primarily takes place OTC and on organised trading venues such as Bloomberg, Eurex Bonds and Tradeweb.

1.2.5.2 Secondary market for other bonds

For other bonds as well, most trading takes place in the secondary market via bond brokers. Brokers act as market makers for government bonds as well as other securities. Brokers often quote indicative prices, ie the prices they might be willing to buy or sell the bonds for. Customers must make contact to obtain precise price quotes and to execute trades.

Both Norwegian covered bonds and other bonds can be listed on Oslo Børs, but the vast majority of trades take place OTC. In 2014, Oslo Børs introduced a reference list for Norwegian covered bonds that meet certain requirements for size and investor base diversity. For the bonds on this list, indicative prices are quoted continuously through the day. The reference list is intended to improve the liquidity of the securities and to promote them to investors.

1.2.6 Other bond market participants

Credit rating agencies assess the credit quality of issuers and their bonds and issues credit ratings on a rating scale. Credit ratings can be regarded as an assessment of expected losses. Market pricing of risk associated with issuers and bonds is therefore closely linked to the credit ratings they achieve.

A single bond issue often involves a large number of investors. A trustee is usually appointed to act on behalf of all the bond investors and promote their interests vis-à-vis the issuer. In Nordic bond markets, the Nordic Trustee company often acts as trustee. The presence of a trustee is important in that it provides assurance to bond investors that their rights are being safeguarded.

1.3 Foreign exchange

Currency is the generic term for a country's monetary unit. The Norwegian krone (NOK) is Norway's currency, while pound sterling (GBP) is the UK's currency. The foreign exchange (FX) market is the market for the purchase and sale of currencies. The exchange rate is the price of one currency in terms of another and is decided in the FX market. Exchanging one currency for another or using traveller's cheques account for a very small share of the activity in the FX market. In practice, most currency exchange takes place when deposits in one national currency in a banking system (for example NOK in a Norwegian bank) are transferred and deposited in another currency in this currency's banking system (for example Swedish krona (SEK) in a Swedish bank). The way currency trades

1 Detailed terms and conditions for primary dealers are available here: https://www.norges-bank.no/en/topics/Government-debt/Secondary-market

CURRENCY CODES (ISO 4217)

ISO 4217 is an international standard for currency codes established by the International Organization for Standardization (ISO). The codes were introduced in 1978. The standard is based on three letters and has made it possible to standardise data processing for different currencies as special symbols such as $ (US dollar), € (euro) and £ (pound sterling) were thereby rendered superfluous. The first two letters are based on the ISO 316-1 alpha-2 country codes and designate the country. These codes are the same as those used for websites. The last letter designates the currency type. For the Norwegian krone, the code is NOK, NO for Norway and K for krone. In the same way, the code for the US dollar is USD and the code for the pound sterling is GBP. An important exception is the currency code for the euro, which is EUR.

are settled is explained in Section 1.3.3 *Trading structure and turnover in the FX market*. There are certain risks associated with the settlement of currency trades, where time differences between national settlement systems involved in the trades can be considerable. This is discussed in Section 3.2.3 *Foreign exchange settlement risk and the CLS foreign exchange settlement system*. A list of standard currency codes is available (see box: **Currency codes (ISO 4217)**).

1.3.1 FX market

The FX market is the world's largest market in terms of turnover. It is open almost every day, 24 hours a day. It is not one centralised market, but a worldwide collection of trading venues. For NOK, most trades take place abroad, in for example London, New York, Copenhagen and Stockholm. The FX market is one of the markets subject to fewest regulations and requirements imposed by the authorities.

The exchange rate expresses the terms of trade between two different currencies, often called a currency cross or a currency pair. The rate is given as the price of one unit of a currency, referred to as the base currency, in terms of another, referred to as the quote currency. For the euro, the European Central Bank (ECB) recommends using EUR as the base currency, ie expressing the value of one euro in foreign currency.

An exchange rate is determined by supply and demand in the FX market. Supply and demand for foreign currencies are determined by transactions related to international trade in goods and services, interest accruals and other payments between countries, and international capital flows such as foreign investment or debt. Speculative capital transactions account for a substantial share of the transactions in the FX market. Traditional models seeking to explain exchange rate developments over the somewhat longer term are often based on developments in macroeconomic variables, such as interest rates, inflation and output. Over the short term, exchange rates are affected by a number of technical market conditions.

1.3.2 FX market instruments

1.3.2.1 Spot trades

The most common FX market transactions are spot exchanged trades, which are the purchase or sale of currency for immediate delivery. For most currency pairs, spot trading means that settlement will take place two business days after the trade has been agreed, although some currency pairs also settle the day after the day of the trade.

1.3.2.2 Forward trades (outright forwards)

It is also possible to enter into agreements to settle at a later date. Such contracts are called outright forward contracts. The exchange rate used in an outright forward contract is called the forward exchange rate, which is the spot rate adjusted for the interest rate differential between the two currencies during the relevant maturity. This adjustment is either called the forward premium or forward discount, depending on whether the interest rate differential is positive or negative. The designation of forward trades as "outright" indicates that, unlike swap agreements, they will not be reversed at a later date.

1.3.2.3 FX derivatives

Derivatives are instruments whose value is determined by fluctuations in the value of an underlying asset. The most commonly used derivatives in the FX market are FX swaps and FX options (see box: **Derivatives**).

FX swaps are widely used by banks to manage liquidity in both NOK and foreign currency. Banks agree to exchange one currency for another for a short or long period. The process is reversed when the forward contract is settled. Turnover in the FX swap market is highest for contracts with maturities of up to one year. As FX swaps carry no exchange rate risk for banks, they are useful for parties wishing to hedge for exchange rate movements.

FX options are often used to hedge for large undesirable exchange rate changes, but are also used to take speculative positions in the FX market. FX options are primarily traded OTC (see box: **Turnover in securities: exchange-traded and OTC**.

1.3.3 Trading structure and turnover in the FX market

Banks have traditionally had an important market maker role in the FX market, by quoting firm bid and ask prices for trades. Previously, the FX market was largely based on telephone communication between banks. Voice brokers were important participants in the market and contributed to a well-functioning market by communicating prices between market makers via open landlines. Today, a substantial share of FX trading takes place on electronic trading platforms. In recent years, other non-bank participants, ie large financial market participants such as hedge funds and other high frequency traders (HFT), have also begun to act as market makers in the FX market. These participants can trade via large international banks using special counterparty codes and using bank credit lines. Banks charge fees for providing lines of credit. Such participants will often base their FX trades on algorithms.

An algorithm is a computer program used to quote prices or make investment decisions in financial markets. An example of this is an algorithm that automatically quotes a bank's bid and ask prices up to a certain volume. Algorithms can also be programmed to divide up large transactions into many small trades in order to limit exchange rate effects. In addition, they can be used to identify exchange rate trends or can be programmed to buy or sell foreign exchange if financial key figures differ from market expectations. Electronic Broking Services (EBS) was the first platform to facilitate algorithmic trading in the spot market. Algorithms can change prices a large number of times per second. Electronic trading venues such as Refinitiv and EBS have decided that tradable prices quoted by market makers cannot be withdrawn until a certain amount of time has passed, for example one second, even if no trades are made at that price. This is referred to as the minimum quote life.

1.3.3.1 Electronic FX trading

Electronic FX trading has gained ground since the end of the 1980s, when Reuters offered an electronic system where banks could ask for prices (exchange rates) for various cur-

rency pairs. Systems were eventually launched where banks could submit how much they were willing to buy or sell at a given price. Today, that company's name is Refinitiv and it has traditionally been an important trading platform for trades in currency pairs such as GBP/USD, EUR/GBP, AUD/USD, NZD/USD, USD/CAD, Nordic currencies (EUR/NOK, EUR/SEK and EUR/DKK) and several emerging economies' currencies. To compete with Reuters, a number of major international banks jointly established EBS in 1990. Today, EBS is the most widely used platform for EUR/USD, USD/JPY, EUR/JPY, USD/ CHF and EUR/CHF. Previously, the market was primarily shared between Refinitiv and EBS, but a large number of different electronic FX trading platforms have since been established. These are multibank platforms, where multiple banks make prices, or single-bank platforms. The largest multibank platforms are FXAll, 360T and Currenex, but FXAll was purchased by Refinitiv in 2012. Bloomberg also offers its customers the opportunity to trade FX electronically via the FXGO platform

In order to facilitate standardisation and increase efficiency in the exchange of confirmations, payment orders and account information between financial institutions, SWIFT (the Society for Worldwide Interbank Financial Telecommunications) was established in 1973 by 239 banks from 15 different countries. In 2015, more than 11 000 financial institutions in over 200 countries used the system and more than 6.5bn messages were sent via SWIFT. The SWIFT main office is in Brussels.

1.3.3.2 Turnover in NOK

As the FX market is not a centralised market venue, acquiring a complete overview of all its activities is difficult. The BIS has conducted triennial surveys of global FX market activity since 1989 (see the BIS website for more information).

The BIS survey is extensive, and close to 1300 financial institutions across 53 jurisdictions participated in the 2019 survey. The survey showed that average daily turnover in the Norwegian FX market was NOK 257bn in April 2019 (Table 1.3). (Read more on the Norges Bank website). Close to 5% of turnover was in the spot market, while more than 93% was in the forward market. Virtually all trades in the forward market involved FX swaps. FX options and cross currency basis swaps accounted for a very small portion of turnover.

Table 1.3 Average daily turnover in Norway's FX market in April. In billions of NOK and percent of total

	1998	2001	2004	2007	2010	2013	2016	2019
Spot	22,5 (33,6%)	31,1 (26,4%)	18,9 (18,9%)	20,8 (10,8%)	13,6 (10,4%)	15,9 (12,8%)	112,0 (33,7%)	13,4 (5,4%)
Forwards	44,1 (65,8%)	85,8 (72,8%)	80,7 (80,7%)	170,7 (88,7%)	114,5 (87,2%)	106,7 (85,8%)	219,0 (65,8%)	239,17 (93,1%)
- Of which outright forwards	1,2 (1,8%)	3,8 (3,2%)	3,2 (3,2%)	14,5 (7,5%)	10,8 (8,2%)	3,2 (2,6%)	5,4 (1,6%)	4,4 (1,7%)
- Of which FX swaps	42,9 (64,0%)	82,0 (69,6%)	77,5 (77,5%)	156,2 (81,2%)	103,7 (79,0%)	103,5 (83,2%)	213,6 (64,2%)	234,8 (91,4%)
Cross-currency basis swaps	-	0,2 (0,1%)	0,1 (0,1%)	0,3 (0,2%)	2,4 (1,8%)	0,9 (0,8%)	0,6 (0,2%)	3,1 (1,2%)
FX options	0,4 (0,6%)	0,9 (0,7%)	0,3 (0,3%)	0,7 (0,3%)	0,8 (0,6%)	0,7 (0,6%)	1,0 (0,3%)	0,5 (0,2%)
TOTAL	**67,0 (100%)**	**117,9 (100%)**	**100,0 (100%)**	**192,5 (100%)**	**131,4 (100%)**	**124,3 (100%)**	**332,7 (100%)**	**256,9 (100%)**

Sources: BIS and Norges Bank

In the NOK spot market, turnover has traditionally been highest in EUR, while in the forward market, turnover has been highest in USD. If a Norwegian customer wants to buy USD with NOK, the customer's bank will probably first use NOK to buy EUR and sell EUR for USD simultaneously. The transaction is conducted in this manner because these markets are somewhat more liquid than the market for USD purchased with NOK. Globally, spot turnover is greatest in USD, EUR and JPY against other currencies. In the forward market, USD is the main benchmark currency.

1.3.3.3 Reference exchange rates

Oslo Børs has listed official exchange rates in Norway since the stock exchange opened in 1819 and until 1 September 2001, when Norges Bank took over. Exchange rate listing is now normally undertaken daily at 2.15 pm. The rates are not binding and are only meant to provide a snapshot of the FX market. Starting on 1 July 2016, the European Central Bank (ECB) took over the quoting of exchange rates and the publication time was then moved from 2.30 pm to around 4 pm. The background for this is the ECB's view that the rates are for informational purposes only and should not be used for transaction purposes (see ECB press release of 7 December 2015).

Exchange rates fluctuate considerably in the course of a day, and official exchange rate listings at fixed times are needed in order to measure the value of FX positions. The Norwegian Tax Administration, for example, refers to Norges Bank's exchange rates to assess foreign currency items in tax returns. A commonly used official benchmark exchange rate is the WM/Refinitiv Fix, which is fixed daily at 4 pm GMT. These rates are often used by international banks and managers in portfolio valuation. The WM/Refinitiv Fix has received considerable attention in recent years because several banks are said to have exchanged information about customer orders that were to be executed at the time of the fix. This gave banks the opportunity to take on positions just before the fix, and a number of large international banks have since received substantial fines for abusing their positions. To make it more difficult to manipulate the benchmark, the fixing window, ie the period in which price developments are used to calculate the fix rate, has been widened to 2½ minutes before and after the time of publication. For most currency pairs, turnover data from the Refinitiv Matching, EBS and Currenex trading platforms are used to calculate the WM/Refinitiv fixes.

1.3.4 FX for travel and holidays

Norwegian tourists today largely use international debit or credit cards such as VISA, MasterCard, Diners or American Express to pay for goods and services when they are abroad. However, there will still be a need for cash in local currency to pay various expenses. In recent years, Norwegian banks have scaled back FX purchase and sale facilities at their branches and instead redirected customers to ATMs that dispense the most common currencies. The purchase and sale of foreign exchange for travel and holidays in Norway today largely takes place at exchange bureaus in the largest cities and at airports and train stations.

1.4 Equities

Equities are shares in a business that represent an ownership interest in that business's equity capital (ie, the value of its assets less its liabilities). The market value of all the shares in a business represents the market value of its equity capital. Equity markets are markets for issuing new equities (primary market) and for trading equities (secondary market). Equity markets distribute capital and spread risk among investors and businesses/projects.

1.4.1 Corporate structure and funding

Entrepreneurs starting a business must invest their own equity capital or raise equity capital from other investors. Sufficient equity capital is necessary for both start-ups and existing companies to obtain loans from banks and/or markets. Equity capital and any loans, referred to as debt or debt capital, are used to cover establishment and development costs and to fund machinery, goods and other equipment a business needs for its daily operations.

Fresh equity capital can be raised by issuing equities, or ownership shares, in the business. The most common corporate structure is the limited liability company, where shareholders' liability is limited to their contribution to the company's equity capital. Shareholders are otherwise not liable for the company's debt or other obligations. Norwegian limited liability companies can either be public (ASA) or private (AS) and are regulated by the Norwegian Public Limited Liability Companies Act and the Limited Liability Companies Act (electronic versions not available), respectively. This legislation includes provisions relating to accounting, dividend distributions and share capital write-downs, which are intended to protect a company's creditors. An AS requires a minimum of NOK 30 000 in share capital, while an ASA requires a minimum of NOK 1m. Requirements are higher for ASAs because these are companies with a large number of shareholders and/or that wish to be able to raise capital from the general public. Listed limited liability companies must be ASAs. Boards of ASAs are required to be gender-balanced, but in an AS, one and the same person may be the company's sole shareholder, board member and employee.

The accounting profit or loss from the company's activities is added to (or deducted from) equity capital. Earnings therefore influence the value of the shares. Earnings also often set an upper limit on dividends that can be paid to shareholders. The portion of earnings that is not paid out as dividend can be used to repay debt or finance new projects. When the business posts a loss, equity capital is reduced and the company can go bankrupt if the loss exceeds the total value of equity capital. In the event of bankruptcy, debt capital is given priority over equity capital. Thus, equity investments involve higher risk than investments in debt capital (eg bonds). Greater risk implies that equity capital should be expected to yield higher returns than debt capital over time. A high equity capital ratio improves a company's ability to survive periods of loss and makes it easier to raise new debt capital. Companies operating in an industry where earnings are highly volatile normally have higher equity capital ratios than those operating in industries where earnings are more stable.

1.4.2 Equity markets

For shareholders holding shares as a financial investment, buying and selling shares easily will be important. Shares in an ASA are therefore often traded on a stock exchange or other regulated trading venue. Most limited liability companies are nevertheless small and unlisted, with few shareholders and infrequently traded shares. Equity markets provide a way of transforming illiquid investments in fixed assets, expertise and specialised production equipment, into more liquid holdings for investors. The sale of a few shares does not normally affect the share price, but the sale of large volumes of shares over a short period can reduce the share price. The problem of executing transactions of the desired size without affecting share prices is referred to as market liquidity risk (see box: **Liquidity**).

Investors as a group conduct a form of continuous indirect monitoring of companies' operations via the price of new issues (primary market) or via the ongoing price discovery process in the secondary market (trading on the stock exchange). For investors to

be willing to buy shares, the subscription/market price must be attractive enough for the company's expected earnings to satisfy buyers' required rate of return adjusted for the risk that earnings will not be as expected (risk-adjusted return). Companies/projects with low profitability or poor management are "punished" by lower share prices. Listing on the stock exchange contributes to diversification of ownership, and profitability assessments of projects and management are therefore conducted by a number of investors. For assessments to be as accurate as possible, companies are required to submit reliable information, such as periodical financial reporting. Stock exchanges and legislators have an important role in ensuring that appropriate regulatory frameworks are in place. This includes the requirement that all relevant information about listed companies is made available to market participants in such a way that all participants receive the information at the same time (see *Appendix 1: Regulation of financial markets and trading venues*).

As it can be costly to promote a company/project to investors in the equity market, small companies/ projects have in practice little direct access to capital from equity markets. An alternative source of equity capital has emerged: crowdfunding. (For more information on crowdfunding, see Section 2.9.5 *Crowdfunding*.)

Equity markets allow investors to diversify their investments across companies and sectors, and thus reduce the risk associated with individual companies. At the same time, risk is distributed in such a way that the highest risk will be borne by the investors with the highest capacity and appetite for risk. In well-functioning equity markets, it is also easier for companies to specialise, and risk can thereby be reduced by diversifying investments. (Read more about diversification in box: **Diversification** in Section 2.)

An efficient and secure system for registering the ownership of securities, known as a central securities depository (CSD), reduces the costs associated with investing in securities. Read more about CSDs in Section 3.3 *Securities settlement (VPO).*

1.4.3 Size of the Norwegian equity market

At end-2020, the market value of listed equities, registered with the Norwegian CSD (VPS), was NOK 2 726bn, while the market value of unlisted equities registered with the VPS was NOK 439bn. Most Norwegian limited liability companies are neither listed nor VPS-registered. Oslo Børs ASA is wholly owned by Euronext Nordic Holding AS and operates venues for trading equities and equity certificates (see next section), fixed income products (bonds, short-term paper and Treasury bills) and derivatives. There are three venues for trading equities at Oslo Børs: Oslo Børs, Euronext Expand and Euronext Growth Oslo. Large, long-established companies with wide shareholder bases are listed on Oslo Børs. Euronext Expand (previously Oslo Axess) has somewhat less stringent listing requirements than Oslo Børs and comprises a large number of young companies. Euronext Growth (previously Merkur Market) was established in 2016 and is aimed at small and medium-sized companies as well as large companies that do not aim to be fully listed on regulated exchanges. The admission process for Euronext Growth has been designed to be quicker than for Oslo Børs and Euronext Expand, and its admission requirements are also lower. In May 2021, 206 equities were listed on Oslo Børs, while 17 equities were listed on Euronext Expand and 102 equities on Euronext Growth.

1.4.3.1 Other equity instruments

Equity certificates are equity instruments issued by savings banks. There are clear similarities between equity certificates and shares and both are taxed in the same manner. The primary difference is that equity certificates do not confer full ownership rights to a bank's equity capital and that the composition of savings banks' governing bodies is

subject to specific requirements. Thirty-nine savings banks have issued equity certificates, 28 of which are listed on Oslo Børs. Oslo Børs has established an Equity Certificate Index (OSEEX), which includes all of the listed equity certificates.

Shares and equity certificates are both equity instruments. Chart 1.5 shows developments in equity instrument turnover on Oslo Børs and in the number of listed equity instruments since 1995.

The turnover rate is influenced by price developments for equity instruments (Chart 1.6). The higher the price level, the higher the turnover rate, all else being equal. When online trading of equities became possible with the introduction of a new electronic trading system on Oslo Børs in 1999, transaction costs were reduced substantially, especially for small investors. The annual number of trades and the turnover rate increased sharply until the onset of the international financial crisis in 2008 (Chart 1.8). The number of trades has also remained fairly high since the crisis, possibly influenced by increased algorithmic trading. Turnover has nonetheless declined, and increased competition for trading in Norwegian equities from alternative market venues and foreign stock exchanges may have contributed to the lower turnover.

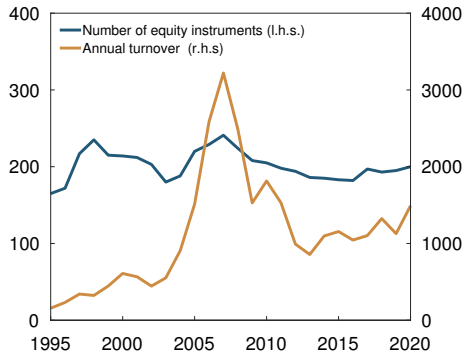
1.4.4 Issuers

Chart 1.5 shows developments in the number of equities and equity certificates listed on Oslo Børs. The number of new companies on Oslo Børs may be affected by the business cycle. It may be easier to raise capital in the market when the economic outlook is favourable. Companies aiming to be listed on the stock exchange must meet listing requirements in terms of size, company history and spread of share ownership. A large number of owners increases the likelihood that the company's shares will be regularly traded on the exchange. The most common reason why a company is delisted from Oslo Børs is that it is taken over by another company. Companies that go bankrupt will also be delisted. In some cases, majority shareholders also want to delist a company from the stock exchange; delisting of shares for this reason is subject to special rules that aim to protect the interests of minority shareholders.

The sector composition of companies listed on Oslo Børs is markedly different from that of other countries. The Oslo Børs energy sector index (primarily oil and offshore companies) has a particularly large number of companies.

Chart 1.5 Turnover and number of equity instruments listed on Oslo Børs

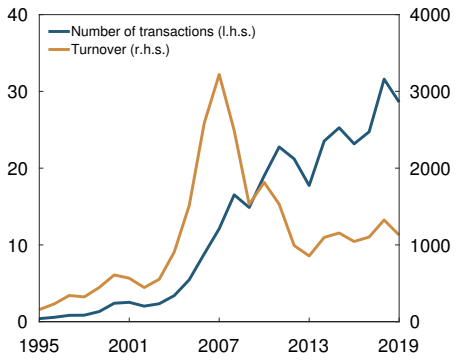
Annual turnover in billions of NOK. Number of equity instruments



Source: Oslo Børs

Chart 1.6 Turnover and number of equity instrument transactions on Oslo Børs

Annual turnover in billions of NOK. Annual number of transactions in millions



Source: Oslo Børs

1.4.5 Investors

Developments in the shareholder structure for companies listed on Oslo Børs since 1997 are shown in Chart 1.7. The two largest categories of shareholders on Oslo Børs are foreign nationals and the Norwegian government, both with ownership interests of at least a quarter of the total market. The third largest shareholder category is other businesses. Less than 4% of equity instruments on Oslo Børs are held by Norwegian private individuals. The partial privatisation and listing of both Equinor (Statoil) in December 2000 and Telenor in June 2001 led to a considerable rise in the government's ownership interest between 1999 and 2001. Changes in the government's ownership interest since 2001 have been influenced by further Equinor and Telenor sell-offs and the relative performance of shares in companies that are partly government-owned compared with general share price developments on Oslo Børs.

1.4.6 Equity indexes on Oslo Børs

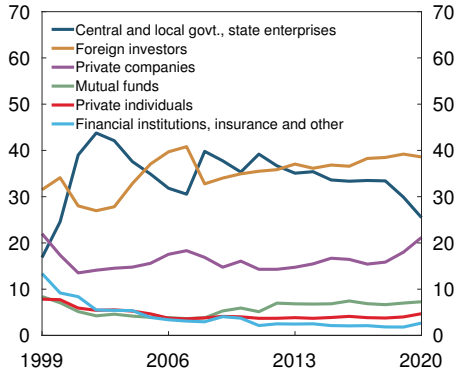
Equity indexes are computed to measure the value of the equity market as a whole and of different segments of the equity market. The most widely used equity indexes are called price indexes and total return indexes. Changes in both share prices and dividends received are used to compute total return indexes, and the weights of the equities in the index are changed daily based on price developments. Price indexes are similar, but dividends received are not included. Equity indexes simplify the comparison of returns in the equity market with those from alternative investments such as bonds and bank deposits.

All equity indexes on Oslo Børs are total return indexes. The Oslo Børs Benchmark Index (OSEBX) is an index containing a representative selection of all the shares listed on Oslo Børs. The selection is based on share turnover and diversification across groups of industries. Oslo Børs revises the index biannually and implements changes on 1 December and 1 June. From 1 December 2020, 68 equities were included in the OSEBX. The OSEBX equity weights are free-float adjusted, ie equities that are not expected to be traded, such as the government's shareholdings and the strategic holdings of shareholders with controlling influence are not included when shares in the index are weighted.

The Oslo Børs index (OBX) comprises the 25 most traded equities on Oslo Børs. The composition of equities in the index is revised biannually. The OBX index is intended to consist of marketable equities that appropriately reflect the equity market on Oslo Børs.

Chart 1.7 Shareholdings in companies on Oslo Børs

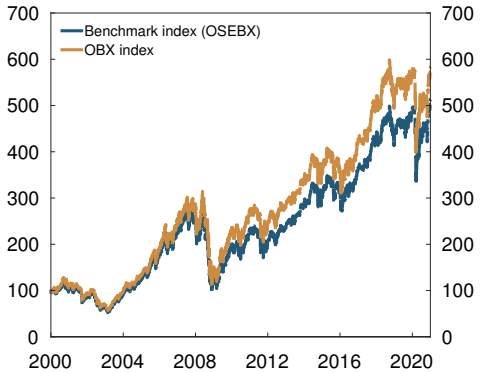
At year-end. Percent



Source: Verdipapirsentralen

Chart 1.8 Main Norwegian stock market indices

Index. 30 December 1999=100.



Sources: Bloomberg and Thomson Reuters Eikon

The OBX index serves as an underlying index for trading in listed derivatives (options and futures) on Oslo Børs (see box: **Derivatives**. In derivatives trading, it is important to be able to buy and sell the various OBX index components (the underlying securities). Chart 1.8 shows total return in the OSEBX and the OBX index. The chart shows that since 2000, the 25 most traded equities have shown somewhat higher returns than a more broadly composed index.

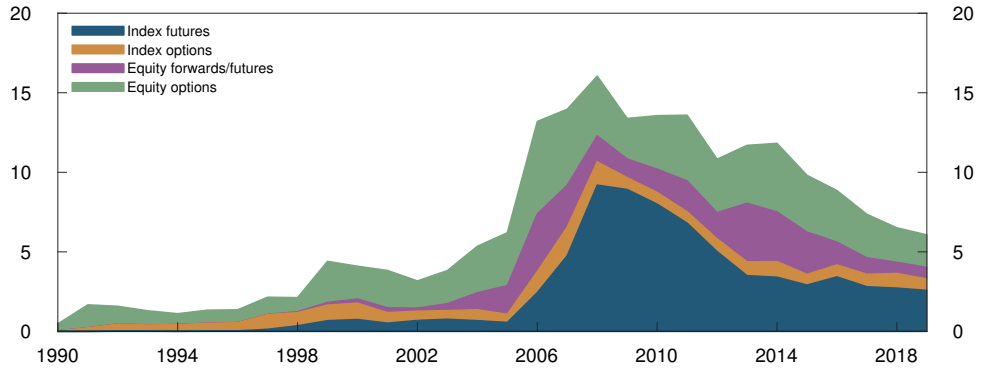
1.4.7 Equity-related derivatives

The characteristics of different types of derivative are explained in box: **Derivatives**. Exchange-traded derivatives are standardised with regard to the underlying instrument and terms of delivery. On Oslo Børs, options and futures on the OBX index, and options, futures and forwards for the most liquid equities are traded. Listed derivatives are settled via a clearing house, which acts as central counterparty (CCP) for both buyer and seller (see Section 3.3 *Securities settlement (VPO)*).

Two widely used key figures for activity in the derivatives market are the number of traded contracts and the total value of these contracts. The annual number of standardised derivatives contracts on Oslo Børs rose substantially in the period 2002–2008, but has since edged down as a result of a decrease in the number of index derivatives (Chart 1.9).

Oslo Børs also offers trading in non-standardised derivatives, called tailor-made (TM) or OTC derivatives. Parties themselves agree upon underlying instruments, exercise price, expiry date and the handling of corporate events. Trading in OTC derivatives largely takes place outside Oslo Børs.

Chart 1.9 Number of trades in standardised equity derivatives contracts on Oslo Børs
In millions of trades



Source: Oslo Børs

2 Financial institutions

Financial institutions function as intermediaries between economic agents. Their main tasks are to enable businesses and private individuals to borrow money and invest savings, execute payments, handle cash and assess, redistribute and price risk. The role of financial institutions in money and capital markets is described in Section 1 *Financial markets*. The Financial Institutions Act lists the entities that can be defined as financial institutions (see box: **Financial Institutions Act**).

Norges Bank is the central bank of Norway, and Section 2.1 provides an overview of Norges Bank's primary tasks. Banks constitute the largest and most important category of financial institution. They have the exclusive right to accept deposits from the public and account for the largest share of lending. Banks are significant participants in the payment system since deposits are used as means of payment alongside cash. Private individuals and businesses hold accounts in banks in order to receive or pay wages and bills. Banks also lend to private individuals or to businesses. Mortgage companies may also lend money but may not accept deposits (see Section 2.4 *Mortgage companies*). These companies have taken over a large share of residential mortgage financing since 2007, when a new type of mortgage company issuing covered bonds was authorised. Insurance companies offer life insurance, non-life insurance and credit insurance (see Section 2.6 *Insurance companies*). Together with pension funds, they channel savings and manage risk.

Table 2.1 provides an overview of various types of financial institution in Norway grouped by size.

FINANCIAL INSTITUTIONS ACT

The new Act on Financial institutions and Financial Groups (*Financial Institutions Act*) entered into force on 1 January 2016 and is primarily a systematisation and continuation of earlier legislation. The purpose of the Act is to promote financial stability, including ensuring that financial institutions operate in an appropriate and sound manner. The Act lays down requirements for the establishment, operation and wind-up of financial institutions. Under the Act, the following kinds of entities are considered financial institutions:

- banks
- mortgage companies
- finance companies
- insurance companies
- pension undertakings
- holding companies of financial groups
- undertakings authorised to operate as payment institutions or e-money institutions, unless otherwise prescribed by provisions of, or pursuant to, the Financial Institutions Act.

Investment firms, management companies for mutual funds, state banks, public funds and Norges Bank are not considered financial institutions. Nevertheless, some of these entities will be discussed in this section.

Table 2.1 Types of financial institution in Norway. At 31 December 2020

	Number	Loans (NOK bn)	Total assets (NOK bn)	Total assets (in percent of GDP)
Banks (excl. branches of foreign banks)	118	2123	4325	127%
Branches of foreign banks	16	833	1686	49%
Mortgage companies (incl. branches of foreign banks)	31	2142	2590	76%
Finance companies (incl. branches of foreign banks)	41	192	209	6%
State lending institutions	3	384	397	12%
Life insurance companies (excl. branches of foreign companies)	12	134	1828	54%
Non-life insurance companies (excl. branches of foreign companies)	52	3	197	6%

	NOK bn
Market capitalisation of shares and equity certificates, Oslo Børs	2778
Bond and short-term paper debt outstanding	2552
Issued by the public sector and government-owned companies	857
Issued by banks	357
Issued by other financial institutions	728
Issued by other private companies	259
Issued by foreign entities	351
GDP Norway (2020)	3413

Sources: Finanstilsynet, Statistics Norway and Norges Bank

2.1 Norges Banks's balance sheet and the financial system

The main items in Norges Bank's balance sheet are presented in Table 2.2. On the asset side are claims in NOK and in foreign currencies. On the liability side is central bank money in the form of deposits and banknotes and coins, in addition to equity. Many of Norges Bank's primary tasks involve changes in the balance sheet.

Norges Bank functions as the banker's bank. In practice, this means that banks hold accounts at the central bank and use them to settle interbank payments. Norges Bank is an advisory and executive body for monetary policy, ie it sets the interest rate on banks' deposits in Norges Bank. This rate forms the basis for the interest rate level in Norway. Banks are also able to borrow from Norges Bank. The central bank is the lender of last resort and is responsible for ensuring that solvent banks hold sufficient liquidity even in a crisis situation and shall, if necessary, provide extraordinary liquidity assistance (ELA). Norges Bank requires collateral for all types of loans and does not assume credit risk on behalf of the government.

Norges Bank is the government's banker, and the Treasury single account system is maintained by Norges Bank. Norges Bank also engages in activities on behalf of the government that are not reflected in the balance sheet, such as facilitating government

Table 2.2 Norges Bank's balance sheet

Assets	Equity and liabilities
Loans to banks Claims on the IMF Foreign exchange reserves	Deposits from banks Deposits from the IMF Government deposits Banknotes and coins Equity
GPFG	Government deposits, GPFG

borrowing through the issuance of government bonds and Treasury bills. Norges Bank's balance sheet includes the securities holdings in the Government Pension Fund Global (GPFG). Offsetting these securities holdings is the government's savings account with Norges Bank (GPFG deposits).

Norges Bank has operational responsibility for ensuring that payments can be executed in Norway. Norway has the sole right to issue cash and provides cash in the quantity demanded by the general public, which it does in collaboration with private entities. Payments between banks with an account (central bank reserves) at Norges Bank are settled in Norges Bank's settlement system (NBO). This settlement is a precondition for all other payments made in NOK.

The purpose of Norges Bank's activities is not to ensure the highest possible return on equity. Instead, Norges Bank performs the tasks laid down in the Central Bank Act and accordingly must manage its equity in the best possible manner. Because of its tasks on behalf of society, Norges Bank assumes financial risk. For example, the central bank assumes considerable foreign exchange risk in its management of the foreign exchange reserves. The Bank's equity is owned by the government, and if necessary, the government can supply additional equity. As the owner of Norges Bank, the government receives transfers of profit from the central bank according to specified rules.

2.2 Financial groups

A single financial group can comprise several types of financial institution and this type of horizontal integration has shown a growing trend over time.

A financial group can more easily offer customers a complete range of products and services than a single institution, exploiting economies of scale in areas such as IT and marketing. What is known as "cross-selling", where group companies market and sell one another's products and services, can boost earnings. Alliances of savings banks can have the same effect. A number of alliances operate non-banking activities on behalf of member banks. The individual savings banks are usually too small to form their own financial groups in order to engage in insurance activities, investment management and the like. A financial group, such as the SpareBank 1 Alliance, can offer these services.

Table 2.3 provides an overview of the eight largest financial groups in Norway and their main line of business. Of these, six mainly engage in banking, while the remainder specialise in insurance.

DNB, the SpareBank 1 Alliance, KLP, Storebrand and the Eika Alliance are the largest Norwegian-owned financial groups. They offer most kinds of financial services. DNB,

Table 2.3 Largest Nordic banking groups operating in Norway. By market capitalisation. At 29 June 2021

Financial group	Main business line
Nordea	Banking
DNB	Banking
SEB	Banking
Sampo	Insurance
Handelsbanken	Banking
Swedbank	Banking
Danske Bank	Banking
Gjensidige	Insurance

Source: SNL Financial / S&P MI

the SpareBank 1 Alliance and the Eika Alliance mainly engage in banking, while the other two focus on insurance.

2.3 Banks

Banks offer a number of products and services to economic agents, including short-term and long-term loans. They differ from other types of financial institution because they have the exclusive right to create and accept deposits from the public. Deposits are the simplest and most common form of savings for households, as well as the most important means of payment.

Banks offer a number of deposit products, which vary according to interest rate terms and restrictions on withdrawals. Among the types of account offered by banks are ordinary current accounts, savings accounts or high-interest accounts and the home savings scheme for young people (BSU) account. Deposits can be withdrawn as cash from ATMs, in shops and in bank branches, or used directly to make payments using debit cards or via an online or mobile banking service. The increased prevalence of computers and smart phones has increased the use of online and mobile banking, resulting in fewer bank branches and ATMs in Norway. (For more on the role of banks in the payment system, see Section 3 *Financial infrastructure*.)

Banks offer several types of loan, such as residential mortgage loans, commercial loans and consumer loans. Loans can vary by type of interest (fixed or floating), length of fixed-rate periods, currency and form of repayment (annuity or serial loan). Interest-only loans have also become more common, often in the form of home equity lines of credit up to a maximum amount. The borrower is free to make repayments or borrow more up to this limit. The Regulation on requirements for new residential mortgage loans now sets a cap on new home equity lines of credit at 60% of the dwelling's value. The borrower pays interest only on the amount drawn at any given time. Furthermore, banks can exchange foreign currency and provide financial advice. Some banks choose to offer only a limited range of loans or services, eg banks that specialise in consumer credit. (see box: **Consumer credit** and "Strong growth in consumer credit", *Economic Commentaries* 1/2017, Norges Bank).

CONSUMER CREDIT

Consumer credit refers to credit card debt and other forms of unsecured debt. Consumer credit, including Norwegian households' interest-bearing credit card debt amounted to around NOK 107bn, or around 3% of total household borrowing at end-2020.[1] Credit card issuers usually offer credit with an interest-free period of e.g. one month. Interest-bearing credit card debt accounts for around 43% of consumer credit as herein defined. Interest rates on consumer debt are generally much higher than on collateralised loans. Banks and finance companies' margins on consumer loans are higher, which can be an advantage as expected default rates and losses are considerably higher for consumer loans than for other kinds of loans to private individuals. To increase lenders' resilience to losses, risk weights for consumer loans are higher than for lower-risk loans, such as residential mortgages. Higher risk weights result in higher capital requirements. (Read more in Appendix 2: Capital and liquidity regulation.)

Consumer credit to Norwegian households grew substantially in the five-year period to end-2018, in some years far exceeding growth in total household debt. Through 2019, growth in consumer credit fell to zero, and in 2020, the stock of consumer debt was reduced by around 12%. This may reflect the measures by the authorities described below.

After the financial crisis (2008–2009), a number of new consumer credit providers have entered the market, primarily relatively new operators. The new specialised consumer credit banks have primarily funded lending and rapid growth by a corresponding increase in deposits. Consumer credit banks attract deposits by offering markedly higher deposit rates than other banks. The combination of high interest rates and deposits that are largely guaranteed by the Norwegian Banks' Guarantee Fund make consumer credit banks attractive to depositors.

To improve the consumer credit market and strengthen the position of consumers, the authorities have introduced a number of measures.

Two regulations have been laid down, one on the invoicing of credit card debt and another on the marketing of consumer credit. In addition, the Storting has adopted the Act on consumer credit information. The Act strengthens finance companies' ability to perform sound credit assessments as it gives new creditors access to information about a borrower's existing debt by authorising debt registers for unsecured debt. In early 2019, the Ministry of Finance issued a regulation laying down requirements for banks' prudent consumer lending practices, based on previous guidelines. From 2021, the residential mortgage regulation and consumer credit regulation have been replaced by a new common lending regulation for all personal loans. Read more about consumer credit in Section 3.5 of the 2021 Financial Markets Report (Norwegian only).

1 Source: Gjeldsregisteret AS. Includes only debt with more than 8% interest

Norwegian banks are classified as either savings banks or commercial banks, but this distinction has become less relevant over time. The main difference between commercial and savings banks is related to ownership structure and not to the services they offer customers (see also box: **Evolution of the Norwegian banking sector over the past 50 years**).

EVOLUTION OF THE NORWEGIAN BANKING SECTOR OVER THE PAST 50 YEARS

Norwegian banks are classified as either commercial banks or savings banks. A commercial bank may only be established as a private limited liability company (or public limited liability company). A savings bank, on the other hand, may not be established as a limited liability company. Savings banks have traditionally been organised as mutually owned foundations, with equity primarily comprised of previous years' retained earnings. Savings banks are expected to support local communities, even if no legal obligation exists, both by offering reliable banking services and by using some of their profits to support local activities.

From around 600 savings banks in 1960, the number has fallen to slightly over 100. While commercial banks increasingly became nationwide institutions, savings banks increased in number in regional Norway. With changes in settlement patterns and industry structure, savings banks had to become larger in order to constitute a real alternative to commercial banks. Following the banking crisis around 1990, just over 70% of savings banks' total assets were concentrated in the ten largest savings banks.

From the end of the 1980s, savings banks were allowed to raise additional equity capital in the market. This was necessary for enabling them to participate in the same lending growth as commercial banks. These equity instruments are called equity certificates today. (See Section 1.4.3.1 *Other equity instruments*)

Alliances in the savings bank sector evolved through the 1990s. SpareBank 1 Gruppen was established in 1996, while the Eika Alliance (Terra Gruppen between 2000 and 2013) was established in 1997. The idea behind forming alliances was to establish joint product companies for non-banking activities, while actual banking activities continued at the individual banks.

In 1985, foreign banks were authorised to engage in banking activities in Norway. This was the beginning for the subsidiaries and branches of foreign banks that subsequently became important participants in the Norwegian banking market. There was a series of mergers between Norwegian banks and a number of acquisitions by foreign banks in the late 1980s and the 1990s, leading to a substantial reduction in market share for Norwegian commercial banks. At end-2020, there were 40 Norwegian commercial banks, including two subsidiaries of foreign banks and 16 branches of foreign banks in Norway.

Today's largest Norwegian financial group, DNB, was formed through a series of mergers. In 1990, two of Norway's largest banks, Bergen Bank and Den norske Creditbank, merged to form Den norske Bank (DnB). DnB and Postbanken merged in 1999, and Gjensidige NOR and DnB merged to form DnB NOR in 2003, which at the end of 2011 was called DNB. (Read more about the evolution of the banking sector in Norway in "Norges Bank's financial sector role in the period 1945–2013, with a particular focus on financial stability", *Staff Memo* 9/2016, Norges Bank.) For a complete overview of the different types of bank in Norway, see Finanstilsynet's registry.

2.3.1 Banks' tasks

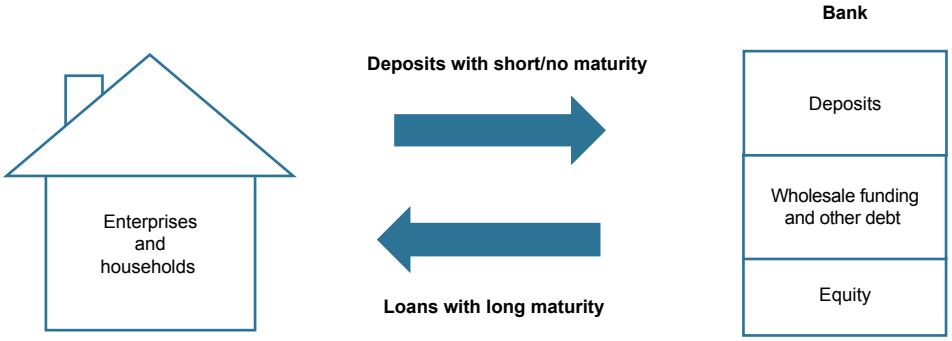
2.3.1.1 Providing opportunities to save and borrow

Banks play an important role as an intermediary between prospective savers and prospective borrowers. Savers deposit their cash in deposit accounts with a certain rate of return in the form of interest payments. Amounts can be withdrawn as and when needed by depositors. The banks transform many small and liquid deposits into fewer, and on the whole, larger and long-term loans.[2] But banks do not only function as intermediaries between depositors and borrowers. Banks create money when they issue a new loan to a customer (see box: **Creating money**).

Banks assess the probability that a borrower will default. If the borrower does not pay, the loss falls on the bank. There are economies of scale to be achieved in gathering and processing information, issuing credit ratings, following up borrowers and formulating loan contracts. Banks can also access confidential information on existing and potential customers. Information about a borrower's personal identity number, income and degree of capability for work, etc, is necessary for establishing a contract, but customers may be reluctant to provide this information to "just any" provider of goods or services, due to its sensitive nature. Owing to the cost involved in gathering information, most private individuals and small and medium-sized businesses will borrow from banks and not directly in the bond market (see Section 1.2.2.4 *Non-financial enterprises (businesses)*). Banks charge fees and interest as payment for loans and other services. Banks pay a lower interest rate on deposits than the interest they receive from loans. The difference is referred to as the interest rate margin.

A borrower may have a substantial and immediate need for capital, to buy a home or purchase production equipment, for example. However, the borrower's income, which will be used to repay the loan, is spread over several years. The borrower therefore needs a long-term loan. Savers on the other hand may prefer to have immediate access to their funds. Banks meet the needs of borrowers and savers by offering borrowers long-term loans, while offering savers immediate access to their funds. The transformation of short-term deposits into long-term loans is called maturity transformation (Chart 2.1). The primary reason banks are able to do this is that the overall stock of deposits has proved to be fairly stable. Statistical calculations enable banks to forecast how much they must normally have available to pay depositors. Banks also hold deposits with the central bank and have access to the central bank borrowing facilities, which helps them to manage fluctuations in customer deposits. A situation may nonetheless arise when a bank's solvency is in doubt, prompting a large number of depositors to withdraw their

Chart 2.1 Maturity transformation



2 See Holden, S. (2016), *Makroøkonomi*. Cappelen Damm, for a more detailed and explanatory presentation (Norwegian only).

CREATING MONEY

Money is defined as a generally accepted means of payment (See box: **What is money?** in the introduction and box: **Definitions of money supply measures** for a more detailed and precise description of money).

Banks do not only function as intermediaries between depositors and borrowers. Banks create money when they issue a new loan to a customer. A new loan increases the customer's deposit account by the same amount. Customer deposits are money. The customer can then choose to use the deposit to pay for a car, for example. The deposit is then transferred to the car dealer, who may either have an account with the same bank or with another bank. In the former case, the deposit will remain in the same bank. In the latter case, the deposit will be transferred to another bank, but remain in the banking system. For the banking system as a whole, new loans will always create deposits, often referred to as deposit money. When the customer repays a loan, the customer's deposits will be reduced by the same amount and money will "disappear". The same thing occurs when banks issue bonds that are purchased by individuals and businesses and when individuals or businesses purchase foreign currency. When a customer exchanges NOK for foreign currency, the NOK deposit will be withdrawn from a Norwegian bank and thus "disappear" from the Norwegian money supply. The customer will receive a foreign currency deposit that is not included in measures of the Norwegian money supply. Tax payments to the central government (but not to local government) also reduce the money supply. These payments end up in the government's deposits with Norges Bank, which are not included in the money supply. Cash withdrawals by individuals and businesses reduce deposits, but not the money supply. (For further details, see "Om pengemengden" [On the money supply], *Staff Memo* 14/2013, Norges Bank (Norwegian only).)

Bank lending depends on opportunities for making profitable loans. This is affected by factors such as the level of funding costs, regulatory requirements and the ability of businesses and households to repay loans. Loan volumes will then determine the volume of bank deposits created in the banking system. At the same time, banks must ensure that they hold sufficient central bank reserves or other liquid assets to make payments to other banks (funding liquidity) and satisfy the authorities' capital and liquidity requirements. Bank deposits are one form of bank funding. Banks also require funding in the form of equity capital. In addition, banks may require other forms of funding, such as bonds or short-term paper. (For an overview of Norwegian bank funding, see Section 2.3.3 *Banks' assets and funding*.)

"Money in the modern economy: an introduction" in the *Bank of England Quarterly Bulletin* 2014 Q1 provides a more detailed account of how banks create money. (See also: "Hvordan skapes penger?" [How is money created?], a post on bankplassen.norges-bank.no, a *blog written by Norges Bank staff*, 4 January 2019 (Norwegian only)).

funds at the same time. This is known as a "bank run". As an element in preventing such an occurrence, a deposit guarantee scheme has been introduced, which is intended to protect the funds of small savers, even if the bank experiences problems. The guarantee scheme in Norway currently covers deposits of up to NOK 2m per depositor per bank (see also Section 2.3.7. *Deposit guarantees in Norway*).

DEFINITIONS OF MONEY SUPPLY MEASURES

The money supply is divided into:

- *Monetary base (M0)*. The sum of Norwegian banknotes and coins in circulation and the deposits of banks, mortgage companies and other elements of the money-holding sector held with Norges Bank, ie central bank reserves or central bank money. The money-holding sector comprises households, non-financial enterprises (businesses), local government administration and financial institutions other than banks and mortgage companies. Foreign sectors are not included.

- *Narrow money (M1)*. The money-holding sector's holdings of Norwegian banknotes and coin and the sector's deposits in transaction accounts at banks in Norway (in NOK and foreign currency). Bank deposits in transaction accounts include deposits from which, irre-spective of purpose, direct payments and withdrawals may be made without incurring costs other than ordinary transaction fees.

- *M2* is defined as the sum of M1 and the money-holding sector's deposits in NOK and foreign currency in accounts at banks in Norway redeemable at notice for up to three months and/or with an agreed maturity of up to two years.

- *Broad money (M3)*. M3 is the sum of M2 and the money-holding sector's holdings of repurchase agreements, excluding holdings of clearing houses, and short-term paper and bonds with a maturity of up to two years issued by banks and mortgage companies in Norway.

"Om pengemengden" [On the money supply], *Staff Memo* 14/2013, Norges Bank (Norwegian only) discusses the money supply aggregates in detail and examines the relationship between them and developments in credit. "The declining deposit to loan ratio – What can the banks do?" *Staff Memo* 28/2012, Norges Bank, is a detailed discussion of developments in bank deposits. Statistics Norway publishes statistics on both credit aggregates and monetary aggregates.

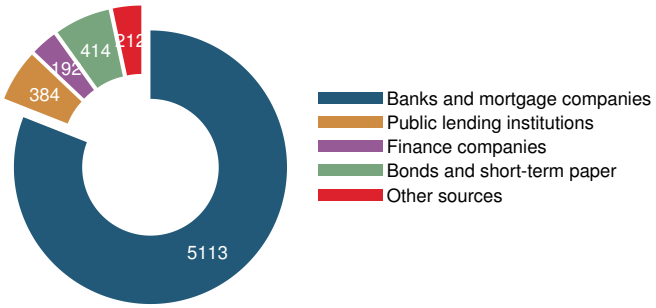
In addition to maturity transformation of customer deposits, banks perform maturity transformation when they borrow in the market at maturities that are shorter than the maturities of the loans they have extended to customers. Interest rates on short-term loans are normally lower than interest rates on long-term loans. Banks will therefore earn more when they choose short-term funding over long-term funding. Banks can modify the maturity structure of their market funding to achieve a better match with the maturity of their customer loans. This reduces maturity transformation, but also reduces refinancing risk (see box: **Risks in the financial system** in the introduction).

Financial markets also contribute to maturity transformation (see Section 1.2 *Bond market* and Section 1.4 *Equities*).

2.3.1.2 Assessing risk

In a well-functioning credit market, banks' assessments of individual investment projects and of borrowers and pledged collateral will help to channel savings to investment projects with an adequate level of profitability. This means the price for or interest rate on loans assessed to be high-risk (eg unsecured consumer loans) will be higher than on

Chart 2.2 Credit to households and businesses by credit source
Gross domestic credit. In billions of NOK. At 31 December 2020



Source: Statistics Norway

low-risk loans. If the borrower provides the lender with collateral, eg a mortgage on a dwelling, the lender's risk of losses is reduced and the interest rate on the loan will be lower.

Banks and their covered bond mortgage companies (see Section 2.4.1 *Covered bond mortgage companies*) have long experience in assessing borrower risk. They often know their customers and use this information and credit risk expertise to quantify and price the risk associated with each loan. Banks also reduce the risk associated with lending by making a large number of small loans to different customers (diversification). Banks and the risks they assume are monitored by owners, the banks' lenders and supervisory authorities. This reduces the likelihood that they will assume risks greater than their risk-bearing capacity.

2.3.1.3 Provision of payment services

Banks are key participants in the payment system. All payments in NOK are ultimately settled between banks in Norges Bank's settlement system (NBO) (see Section 3 *Financial infrastructure*). Only banks may hold an account in Norges Bank (with some exceptions).

2.3.2 Structure of Norway's banking sector

Compared with other European countries, Norway's banking sector is fairly small relative to total GDP (see box: **Norway's banking sector is relatively small**).

Banks and mortgage companies account for around 80% of total domestic credit to Norwegian households and businesses (Chart 2.2). This is a far higher share of total credit than in the US, for example, where the bond market plays a more important role. Norwegian households borrow almost exclusively from banks and mortgage companies, while Norwegian businesses borrow mostly from banks and to some extent in the bond market.

Although there are a large number of banks in Norway's banking sector, the degree of concentration is relatively high. The largest bank, DNB, has a lending market share of around 30% in both the retail and corporate market (Chart 2.3). By comparison, there are three large banks in Denmark and four in Sweden with high market shares.

The Norwegian banking market is dominated by Norwegian-owned banks. The other banks are subsidiaries or branches of foreign banks. The subsidiaries are owned by foreign banks, but are separate Norwegian legal entities, regulated in the same manner

NORWAY'S BANKING SECTOR IS RELATIVELY SMALL

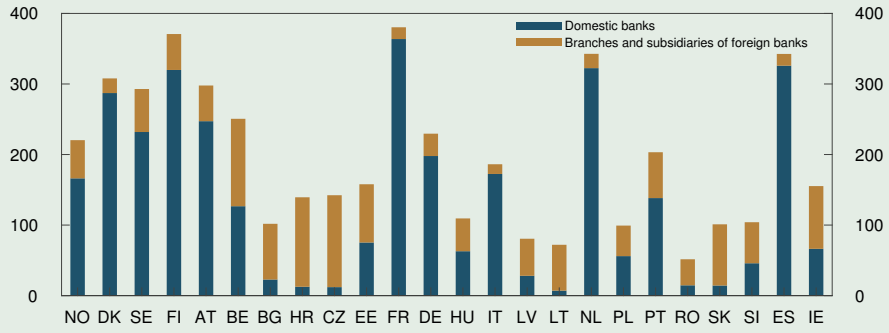
Banking is very international. Most countries have a considerable number of foreign banks, which operate through subsidiaries and branches and engage in direct cross-border activities, as do their own banks in other countries. A country's banking sector can therefore be defined in different ways, including to what extent a bank's other subsidiary companies are included in the definition, particularly bank-owned mortgage companies.

If the banking sector is measured in terms of a balance sheet total that includes subsidiaries, ie a consolidated balance sheet, Chart 2.A shows that the Norwegian banking sector is relatively small compared with other western European countries, but large compared with eastern European countries.

Nor is the proportion of foreign subsidiaries and branches particularly high in Norway. The fairly small size of eastern European banking sectors primarily reflects lower income levels.

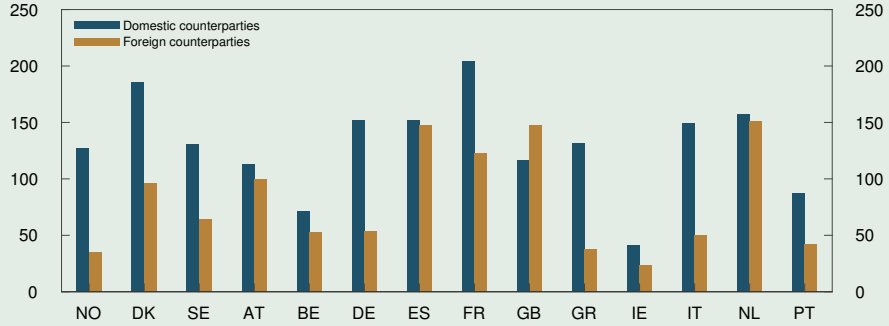
Comparisons with western European countries (Chart 2.B) show that the Norwegian banking sector's relatively small size primarily reflects Norwegian banks' limited activity abroad compared with most other countries. Read more about this in "En internasjonal sammenligning av norsk banksektor" [The Norwegian banking sector in an international comparison], *Staff Memo* 9/2018, Norges Bank (Norwegian only).

Chart 2.A Distribution of total assets of selected countries' banking systems by national banks, subsidiaries and branches, respectively in each country
Consolidated figures. Percent of GDP. 2020



Source: "En internasjonal sammenligning av norsk banksektor" [An international comparison of the Norwegian banking sector]. *Staff Memo* 9/2018, Norges Bank (Norwegian only).

Chart 2.B Distribution of total assets of national banks by domestic and foreign counterparties
Percent of GDP. 2020



Source: "En internasjonal sammenligning av norsk banksektor" [An international comparison of the Norwegian banking sector]. *Staff Memo* 9/2018, Norges Bank (Norwegian only).

Chart 2.3 Market shares of total lending
Percent. At 31 December 2020

Source: Norges Bank

as other Norwegian banks. On the other hand, branches are not separate legal entities and are regulated by their home state authorities. Nordic banks dominate among the foreign banks in Norway, but Santander Consumer Bank (a subsidiary of a Spanish bank) also has a significant presence.

Foreign banks' market share is higher in the corporate market than in the retail market, with a 34% share of the corporate market and a 22% share of the retail market. Over the past 20 years, foreign subsidiaries and branches have increased their market shares in the Norwegian banking market (see "Branches of foreign banks and credit supply", *Economic Commentaries* 3/2017, Norges Bank). On 2 January 2017, the Norwegian subsidiary of the Swedish financial group Nordea was converted into a branch of the Swedish

Table 2.4 Largest banking groups in Norway. At 31 Desember 2020

Banking group	Part of:	Head office/main area
DNB Bank	DNB ASA	Oslo / Norway
Nordea Bank Norge	Branch of a Finnish bank	Oslo / Norway
Danske Bank NUF	Branch of a Danish bank	Trondheim / Norway
Handelsbanken NUF	Branch of a Swedish bank	Oslo / Norway
SpareBank 1 SR-Bank	SpareBank 1 Alliance	Stavanger / Rogaland, Vestland, Agder
SpareBank 1 SMN	SpareBank 1 Alliance	Trondheim / Trøndelag, Northwestern Norway
Santander Consumer Bank	Subsidiary of a Spanish bank	Oslo / auto and consumer loans
SEB	Branch of a Swedish bank	Oslo /commercial and investment banking
SpareBank 1 Østlandet	SpareBank 1 Alliance	Hamar / Innlandet, Oslo, Viken
Sparebanken Vest	Independent savings bank	Bergen / Vestland, Rogaland
SpareBank 1 Nord-Norge	SpareBank 1 Alliance	Tromsø / Troms og Finnmark, Nordland
Sparebanken Sør	Independent savings bank	Kristiansand / Agder, Telemark
Swedbank NUF	Branch of a Swedish bank	Oslo / commercial and investment banking
Sbanken	Independent commercial bank	Norway

Sources: Banking group's quarterly reports and Norges Bank

Nordea Bank AB, and the Nordea Group has since moved to Finland, establishing Nordea Bank Abp in Finland. Nordea is the second largest bank in Norway. The conversion of Nordea resulted in a sharp rise in the market share of the foreign-owned branches. Danske Bank and Handelsbanken are the other large foreign-owned branches (see Table 2.4 for an overview of the largest banks in Norway).

Today's savings bank sector comprises a large number of savings banks. Most are very small, but are members of large alliances. The SpareBank 1 Alliance comprises 14 banks, most of which are large in their regions, while the Eika Alliance comprises close to 65 smaller savings banks. About 18 savings banks remain outside formalised alliances even though some have joint holdings in covered bond mortgage companies and insurance companies, for example.

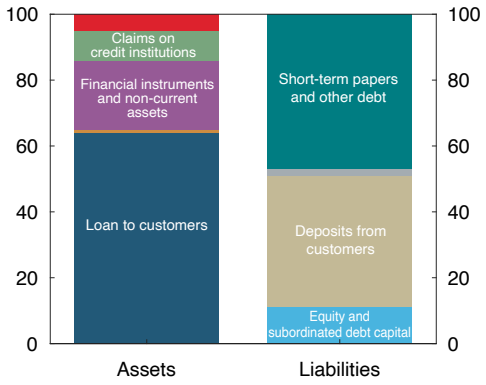
2.3.3 Banks' assets and funding

Loans account for the majority of Norwegian banks' assets (Chart 2.4). The largest single loan items are residential mortgages and commercial real estate loans (Chart 2.5 and Chart 2.6). Lending to these sectors has increased in recent years. Loans are primarily in NOK. Other assets include securities in addition to deposits in credit institutions and central banks. An important reason for banks to hold assets of this type is that they need assets that can be sold quickly if depositors increase their withdrawals or the bank cannot roll over its wholesale funding. Substantial portions of the other assets are in foreign currencies such as USD and EUR.

Norwegian banks fund most of their activities with deposits and bonds (Chart 2.4). Customer deposits account for around 40%, while long-term[3] wholesale funding accounts for around 30%. These two funding sources are assumed to be generally stable. Banks with stable funding are more resilient to periods of turbulence. Small savings banks are financed by customer deposits to a greater extent than the large banks, while foreign subsidiaries and branches are largely funded by the parent bank in the foreign banking group. DNB also relies to some extent on short-term wholesale funding in the form of commercial paper issued in currencies other than NOK.

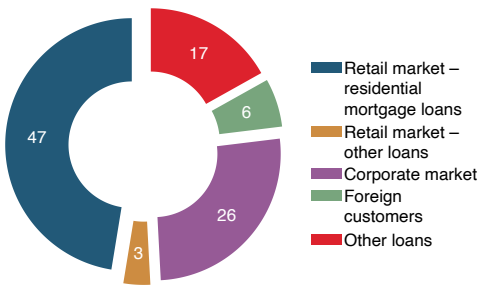
Linking banks with potential customers/depositors is now more efficient due to the development of digital platforms. Deposit platforms are digital trading venues for bank

Chart 2.4 Assets and funding
Norwegian-owned banks and covered bond mortgage companies. Percent.
Per 31 December 2020



Source: Norges Bank

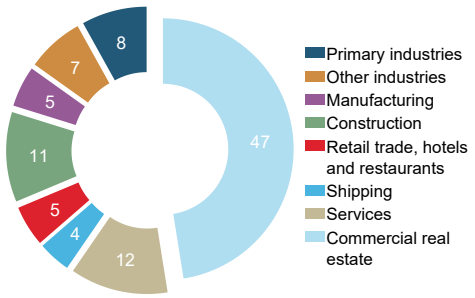
Chart 2.5 Breakdown of lending
Banks and mortgage companies in Norway.
Percent. At 31. December 2020



Source: Norges Bank

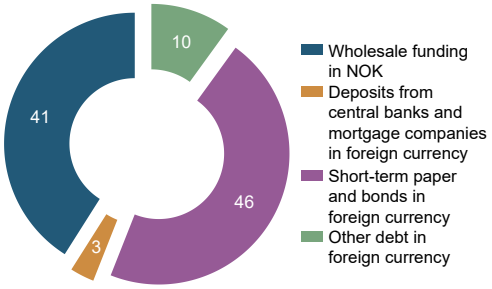
3 "Long-term" means more than one year's maturity.

Chart 2.6 Lending to the corporate sector
Banks and mortgage companies in Norway. Percent. At 31 December 2020



Source: Norges Bank

Chart 2.7 Wholesale funding by currency
Norwegian-owned banks and mortgage companies. Percent. At 31 December 2020



Source: Norges Bank

deposits and provide banks with access to funding, but they are also marketing platforms, targeting potential new customers (see box: **Deposit platforms**). Over half of banks' wholesale funding is raised in foreign currency (Chart 2.7 and discussion in box: **Norway's banking sector is relatively small** in Section 1). Smaller savings banks rely on funding in NOK to a greater extent than large banks. (See "Norwegian banks' foreign currency funding of NOK assets", *Staff Memo* 2/2014, Norges Bank, for a more detailed review of Norwegian banks' foreign currency funding.)

In addition to deposits and borrowing (debt capital), banks also rely on equity funding. In the event of bank losses, equity capital is the first to absorb losses. Equity funding is discussed in more detail in Section 2.3.5 *Capital adequacy regulation*

More statistics are available on Statistics Norway's website.

DEPOSIT PLATFORMS

A deposit platform is a digital trading venue for bank deposits. Banks and potential customers/depositors are linked together on the platform. Customers can be private individuals, businesses, local governments etc. Banks advertise their deposit terms and conditions on the deposit platform, giving customers a comprehensive overview of their products. Customers can then choose a bank and digitally manage their deposits.

A depositor becomes a customer of the bank and not of the deposit platform, which is just an intermediary. Via the deposit platform, customers can open accounts in a number of banks and deposit their money there. This makes it easy for customers to change banks and continually ensure that they have the best terms and conditions among the deposit platform's partner banks.

Deposit platforms give banks access to funding and are also marketing platforms, targeting potential new customers. This can be particularly advantageous for smaller banks and can promote competition between banks. As a rule, deposits are subject to a required savings period and are therefore an advantage in the context of banks' liquidity requirements.

Deposit platforms are still few in number in Norway and in Europe.

2.3.4 Regulating banks – why and how?

Because of their considerable importance to society, banks are subject to extensive regulation. Deposits are an important savings vehicle and means of payment for most people. Other banking tasks, such as maturity transformation, providing payment services, distribution of risk and assessing and monitoring borrowers are also important for a well-functioning financial system and for the economy as a whole.

The aim of banking regulation is to promote the stability and efficiency of the financial system. Regulation is intended to reduce the probability of future financial crises and ensure that banks are able to perform their tasks as efficiently as possible. Regulations can entail costs in the form of a reduction in financial services. If the gains of regulation are higher than the costs, society as a whole will benefit. (See "Why regulate banks?", *Staff Memo* 16/2013, Norges Bank, for a further discussion of why banks are regulated.)

Especially owing to maturity transformation, banks are vulnerable to large withdrawals of deposits and a loss of wholesale funding (see Section 2.3.1 *Banks' tasks*). In the event of substantial funding shortfalls, a bank may quickly find itself in a situation that threatens its existence. In addition, banks are closely interlinked. Problems at one bank can easily spread to others, creating domino effects that can jeopardise the entire financial system. (See "Smitte mellom banker – Systemrisiko som følge av bankenes sammenkobling" [Contagion in the banking sector – Systemic risk owing to banks' interconnectedness], *Staff Memo* 13/2016, Norges Bank (Norwegian only).)

Deposit guarantees are intended to reduce the risk of large withdrawals of deposits by shielding retail customer deposits if a bank fails. Consumer protection is an element of deposit guarantee schemes. Retail customers are not ordinarily able to adequately assess a bank's risk level to determine whether their deposits are correctly priced or to judge a bank's solvency.

The first regulations were aimed at promoting adequate and stable access to banking services. The safety net that was put in place first (deposit insurance and central bank borrowing facilities) may have created a kind of stability that encouraged risk-taking and increased the volume of services provided (behavioural risk). This in turn has resulted in additional rounds of regulation, primarily to curb risk-taking.

Owing to increased globalisation of the banking sector, problems in banks easily spread across borders. For that reason, the past 30 years have seen growing coordination of banking regulation internationally (see *Appendix 2: Capital and liquidity regulation*.) Moreover, the EU single market in financial services has led to a common set of rules for banks in Europe.

Finanstilsynet (Financial Supervisory Authority of Norway) supervises banks and other financial institutions to ensure regulatory compliance. If a bank or other financial institution is in breach of current regulations, Finanstilsynet is mandated to take action to ensure compliance. In the event of non-compliance, the undertaking is as a first step directed to present plans for returning to compliance. These plans must be approved by Finanstilsynet. Finanstilsynet may also impose restrictions on dividend payments to shareholders and interest payments on certain categories of debt and as a last resort, Finanstilsynet may revoke the financial institution's licence. If a bank is on the verge of failing or the authorities decide to close it, crisis management rules will apply (see Section 2.3.8 *Bank recovery and resolution*).

Historically, banking crises have had considerable influence on the design of banking regulation (see "Bank regulation and bank crisis", *Working Papers* 18/2009, Norges Bank). In the aftermath of banking crises, regulation is tightened and minimum capital requirements are raised. When some time has elapsed after the crisis, capital levels have tended to fall. This tendency has also been observed in Norway over the past 25 years.

(For a thorough review of the Norwegian banking crisis at the end of the 1980s and beginning of the 1990s, see "The Norwegian banking crisis", *Occasional Papers* 33/2004, Norges Bank and "Norges Bank's financial sector role in the period 1945–2013, with a particular focus on financial stability", *Staff Memo* 9/2016, Norges Bank. "Bedre rustet mot finanskriser – Finanskriseutvalgets utredning" [More resilient to financial crises – Report of the Financial Crisis Commission], *Official Norwegian Reports (NOU) 2011:1* (in Norwegian, with English summary), provides a detailed review of the global financial crisis in 2008.)

2.3.5 Capital adequacy regulation

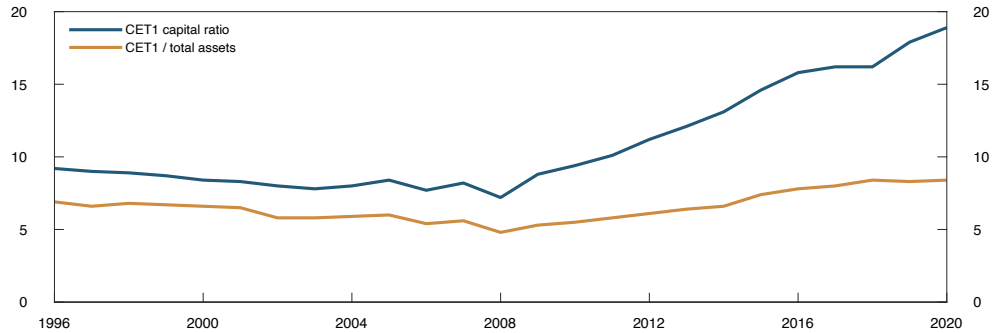
The aim of capital adequacy regulation is to ensure that financial institutions hold sufficient loss-absorbing capital relative to the risk they assume. This capital, which primarily comprises equity and other loss-absorbing capital, is required to be sufficient to absorb fairly large unexpected losses.

Following the banking crisis in the years 1988–1993, the parliamentary commission appointed to investigate the crisis (the Smith Commission) noted that the minimum capital requirement was too low prior to the crisis and that banks were undercapitalised. Banks' capital requirements were subsequently increased. Somewhat stricter capital requirements in Norway than those prevailing internationally were a source of strength for the Norwegian banking sector during the global financial crisis in 2008. The crisis highlighted the need for stricter banking regulation in many areas, and banks' capital requirements were raised.

Since the trough in 2008, Norwegian banks' Common Equity Tier 1 (CET1) capital ratios have increased considerably. CET1 capital as a percentage of total assets has also increased, although far less (Chart 2.8).

Norway is subject to EU capital adequacy legislation, which is based on the Basel III framework and which entered into force in the EU in January 2014. (See Finanstilsynet's consultation document Gjennomføring av CRD IV i norsk regelverk [Implementation of

Chart 2.8 Common Equity Tier 1 (CET1) capital ratios and CET1 capital
Percent



Source: Finanstilsynet

CRD IV in Norwegian regulations] (Norwegian only) and Norway's implementation of the European Union's prudential framework (CRR/CRD IV) for more information on the structure of EU capital adequacy legislation.) Norway began phasing in the Basel III principles in 2013, thereby choosing a faster implementation than the EU. On a number of points, Norwegian capital adequacy rules have departed slightly from EU legislation. From 31 December 2019, however, the EU capital framework (CRR/CRD IV) have been fully implemented in Norwegian law. Changes to the EU capital framework (CRR2/CRDV) will likely enter into force in Norway during 2021. (For a more detailed presentation of the capital requirements in Norwegian regulations, see *Appendix 2: Capital and liquidity regulation*).

2.3.6 Liquidity regulation

In Norway, the global financial crisis of 2008 was primarily a liquidity crisis, which revealed the need for better management of banks' liquidity and funding structure (see box: **Liquidity** in Section 1 for an introduction to the concept of liquidity). Banks can reduce liquidity risk by holding deposits from a large number of small depositors, having long maturities on wholesale funding and holding sufficient liquid assets (liquidity buffers) in the form of marketable securities or central bank reserves. By maintaining liquidity buffers, banks will be more resilient to periods of market turmoil. Banks can use the assets as collateral for new loans or sell them as a way to avoid additional borrowing.

The liquidity rules require banks to hold a certain stock of liquid assets. Under the Liquidity Coverage Ratio (LCR) requirement, banks must hold sufficient high-quality liquid assets to survive a 30-day period of financial market stress. (For a more detailed description of liquidity regulation, see Norges Bank's 2014 Financial Stability Report.*)*

The LCR requirement was finalised in the EU in 2014 and has now also been finalised in Norway. The Norwegian liquidity requirements harmonise with the EU liquidity regulations from 2014. (See Press release from the Ministry of Finance, 25 November 2015 (Norwegian only) and Norges Bank's 2017 Financial Stability Report.)

The Net Stable Funding Ratio (NSFR) requirement proposed by the EU requires banks to hold sufficient stable funding to cover their illiquid assets. The requirement is intended to make banks' funding structure more robust. Retail loans are an example of illiquid assets. Stable funding includes Tier 1 capital, bonds with long residual maturity and several types of customer deposit. The requirement entered into force in the EU from June 2021 and will likely apply in Norway later in 2021.

2.3.7 Deposit guarantees in Norway

Membership of the Norwegian deposit guarantee scheme became a statutory requirement for savings banks in 1924 and for commercial banks in 1961. Under current law, membership is obligatory for all Norwegian banks, including subsidiaries of foreign banks. Deposit guarantee rules are intended to protect small, uninformed depositors, eliminating the need for them to monitor the bank's financial situation and reducing the risk that they will withdraw their funds in a panicked response to rumours that the bank is in trouble. The Norwegian deposit guarantee scheme covers deposits of up to NOK 2m per depositor, including accrued interest (see the Financial Institutions Act). This limit applies even if the customer has more than one account with the same bank. If the customer has deposits in more than one bank, the limit applies to each bank.

In Norway, the Norwegian Banks' Guarantee Fund provides the deposit guarantee. Banks are charged an annual risk-adjusted fee to the Fund. The Fund is responsible for ensuring that depositors gain access to guaranteed deposits no later than seven working days

after the Ministry of Finance has decided that a bank is to be placed under public administration. The same deadline applies if a bank is not permitted to pay out the guaranteed deposits to the depositors for other reasons.

Branches of foreign banks in Norway are, in principle, not covered by the Norwegian guarantee scheme. Deposits held by Norwegian customers in these banks are protected by the deposit guarantee schemes in these banks' home states. However, branches may apply for membership of the Norwegian deposit guarantee scheme (also called "topping up"). In this case, the Norwegian fund guarantees deposits of up to NOK 2m less the amount guaranteed by the home state scheme.

In 2011, the amount insured by deposit guarantee schemes in the EU was fully harmonised at EUR 100 000. The Government is working to retain the higher limit in Norway. (See the Ministry of Finance's web page on the Norwegian deposit guarantee scheme (Norwegian only).)

2.3.8 Bank recovery and resolution

If a large, important bank has been at risk of failing, the authorities in most countries have intervened to ensure the bank's continued operation, fearing serious consequences for the financial system if the bank had to be closed. Rescue operations have been in the form of loans on favourable terms and loan guarantees or capital injections. In almost all cases, no losses have been imposed on creditors. This is referred to as a bailout. A bailout provides banks' creditors with a form of implicit guarantee for their loans, which may have induced them to conduct risk assessments that are less thorough than they otherwise would have been. Creditors have come to expect that the authorities will also bail them out in the future. This is often referred to as moral hazard. Banks have been able to take on more risk without having to pay their lenders for the increase in risk. This increases lending as well as risk in the banking system.

Since the global financial crisis in 2008, new international rules have been introduced for resolving banking crises. In January 2015, the Bank Recovery and Resolution Directive (BRRD) entered into force in the EU. The aim of the Directive is to enable the authorities to manage failing banks to ensure continuity of the bank's critical functions, but without providing banks with public funds.

An important element of the Directive is the bail-in tool. In a bail-in, the authorities write down the value of the bank's debt and/or convert part of the debt into equity without closing the bank. When creditors, including those of systemically important banks, face a real risk of losses, they will assess banks' risks more thoroughly and set the interest rate on their loans to banks in accordance with the risk of losses. Banks' funding costs will rise, and banks' appetite for risk will be lower. Lending will decline and risk in the entire financial system will be reduced (see "Kriseløsing av banker ved hjelp av bail-in – momenter ved innføring i Norge" [Bank resolution with the aid of the bail-in tool – factors associated with introduction in Norway], *Staff Memo* 12/2014, Norges Bank (Norwegian only) for a review of the bail-in tool). In addition to the use of bail-ins, the BRRD contains provisions relating to depositor preference, the use of bridge institutions (temporary public ownership of a failing bank prior to restructuring and sale), the establishment of national resolution authorities and a resolution financing arrangement, and the drawing up of living wills (contingency plans and plans for bank recovery and resolution). An important part of each bank's recovery plan is the minimum requirement for regulatory capital and other liabilities that are subordinated to ordinary senior liabilities[4]. The

4 Subordinated debt is a new class of liabilities that absorbs losses before ordinary senior liabilities but is higher in priority than other subordinated liabilities. See "New debt category for Norwegian banks will make resolution more efficient" on page 29 of Norges Bank's *Financial Stability Report* 2020.

minimum requirement for such capital and liabilities is called MREL (Minimum Requirement for own funds and Eligible Liabilities). In the course of 2021, a new recovery and resolution directive (BRRD 2) will be introduced in Norway (see *Appendix 2: Capital and liquidity regulation* for a more detailed presentation of MREL). Former Deputy Governor Jon Nicolaisen discussed fundamental issues relating to bank resolution in his speech Should banks be bailed out?, given in 2015.

2.4 Mortgage companies

Mortgage companies originate long-term mortgages for households and businesses. Mortgage companies differ from banks in that they cannot accept deposits or perform payment services. Mortgage companies mainly finance their activities by issuing bonds. Covered bond mortgage companies, which finance residential and commercial mortgages by issuing covered bonds, account for a large share of mortgage companies in Norway (see box: **Secured funding** in Section 1).

2.4.1 Covered bond mortgage companies

New rules were introduced in Norway in June 2007 allowing mortgage companies with a special licence to issue Norwegian covered bonds. A covered bond is a bond that gives investors a preferential claim on a specified pool of the issuer's assets, known as the cover pool. There were 25 covered bond mortgage companies in Norway at end-2020.

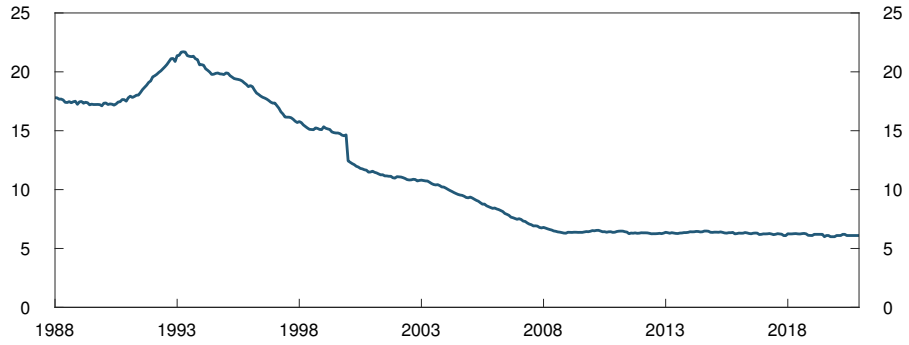
Under Norwegian law, Norwegian covered bonds must be issued by a covered bond mortgage company. Norwegian covered bond mortgage companies are established, owned and controlled by banks. The majority of Norwegian banks are joint owners of such companies with other banks, but some large and medium-sized banks have established their own mortgage companies. A few banks do not have any links with companies issuing covered bonds. Norwegian covered bond mortgage companies are subject to requirements to ensure timely payment of interest and principal and must set strict limits on interest rate and exchange rate risk. Finanstilsynet is responsible for supervising Norwegian covered bond companies' liquidity management and their limits on exchange rate and interest rate risk.

A large number of residential motgage loans in Norway are financed by Norwegian covered bond companies. These are either mortgages funded directly by the mortgage company or mortgages provided by banks and transferred to the covered bond mortgage company, which issues covered bonds backed by the mortgages. Banks normally extend short-term credit to the covered bond mortgage companies when the mortgages are transferred. The covered bond mortgage companies obtain liquidity to repay the credit either by selling covered bonds or by providing the bank with covered bonds of the same value as the mortgages it has transferred. When the mortgages are replaced by covered bonds or the proceeds from the sale, the bank's balance sheet is changed. The bank can, for example, use these funds to repay debt. The possibility of issuing covered bonds expands banking groups' sources of stable funding. Jointly owned mortgage companies enable also smaller banks to obtain funding in international capital markets. ("Norwegian covered bonds – a rapidly growing market", in *Economic Bulletin* 2010 (Vol. 81, 4–19), Norges Bank, provides a detailed review of Norwegian covered bonds and covered bond mortgage companies.)

2.4.2 Other mortgage companies

Some mortgage companies are not authorised to issue covered bonds and primarily issue ordinary unsecured senior bonds. There are only a few of these companies in Norway.

Chart 2.9 Credit from state lending institutions
Percent of domestic credit (C2)



Source: Statistics Norway

Kommunalbanken (the Norwegian state agency for local government funding) is the largest of these, with total lending at NOK 322bn at end-2020. Kommunalbanken provides credit to the Norwegian local government sector. All of Norway's municipalities are customers of Kommunalbanken.

If all Norwegian municipalities were to borrow directly in capital markets, the costs involved would be high. Kommunalbanken can offer favourable borrowing terms for municipalities by providing credit to the Norwegian local government sector as a whole. Kommunalbanken finances its lending to the local government sector by issuing bonds and notes in international capital markets. Kommunalbanken's main product is long-term amortised loans, with the same interest rate offered to all the bank's customers. Kommunalbanken is a limited company wholly owned by the government and has been assigned the highest possible credit rating (AAA). It has been designated by the Ministry of Finance as systemically important and is therefore subject to additional capital requirements.

2.5 Government lending schemes

The purpose of government lending institutions is to finance politically prioritised activities such as providing equal opportunities in education or fostering innovation in the business sector. Government lending schemes are less common than they used to be. At the end of the 1980s, government lending schemes accounted for 18% of total credit in Norway (C2). This share has fallen sharply (Chart 2.9).

Household loans via these lending schemes have decreased in particular. Today, the largest government lending institutions are the Norwegian State Educational Loan Fund and the Norwegian State Housing Bank (see box: **Government lending institutions**).

Loans from government lending institutions are financed by government borrowing. The Norwegian government has the highest possible credit rating and can therefore borrow at a low rate.

2.6 Insurance companies

Insurance is a contract that guarantees compensation for financial loss as a result of arbitrary, unforeseen events. According to the encyclopaedia Store norske leksikon (Norwegian only), the roots of insurance go back to 2250 BC. The basic idea behind all

GOVERNMENT LENDING INSTITUTIONS

The Educational Loan Fund
The Norwegian State Educational Loan Fund was established in 1947 to manage government support for education. The Educational Loan Fund is a government agency under the Ministry of Education and Research with the objective of promoting equal opportunities for all in education regardless of geographical location, age, gender, functional ability or socioeconomic status, primarily by providing grants and favourable loans. The scheme is intended to increase the level of education in the labour force. The Educational Loan Fund has over 1m customers, and financial support for students totalled NOK 36bn in 2020. The Fund's lending portfolio amounted to NOK 209bn (see the Norwegian State Educational Loan Fund's website).

The Housing Bank
The Norwegian State Housing Bank was founded in 1946 as a bank for housing construction. Following World War II, housing was in short supply and the Housing Bank was established to contribute to Norway's reconstruction. Today, the Housing Bank is under the Ministry of Local Government and Modernisation and is responsible for implementing government housing policy. It provides housing allowances, housing grants and loans (see the Housing Bank website). Borrowers are primarily municipalities, private sector firms, housing cooperatives and wage earners. The Bank's lending portfolio amounted to NOK 159bn at end-2020, which is 2.5% of Norway's gross domestic debt.

Innovation Norway
The objective of Innovation Norway is to foster profitable business sector developments in Norway. Innovation Norway is owned by the Ministry of Trade, Industry and Fisheries (51%) and local government authorities (49%) and was established in 2004 as the result of a merger between the Norwegian Industrial and Regional Development Fund (SND), the Norwegian Tourist Board, the Norwegian Trade Council and the Government Consultative Office for Inventors. Innovation Norway's mission is to foster Norwegian companies' competitiveness and promote long-term growth through business sector development. Innovation Norway provides advisory services, grants and loans, promotes Norwegian businesses and tourism abroad and has offices in 22 countries. Its lending portfolio amounted to NOK 19bn at end-2020 (see Innovation Norway's website).

Norwegian Export Credit Guarantee Agency
The Norwegian Export Credit Guarantee Agency (GIEK) is a public enterprise under the Ministry of Trade, Industry and Fisheries and issues guarantees on behalf of the government to promote Norwegian exports in accordance with the OECD Export Credits Arrangement. GIEK's objective is to be a supplement to the commercial banking market, with financial results that will break even over time. GIEK and Export Credit Norway work in close collaboration and on 1 July 2021 merged to become Export Finance Norway (Eksfin). GIEK guarantees credit extended by Export Credit Norway to foreign buyers for purchases of Norwegian export goods and services. GIEK had around NOK 75bn in outstanding guarantee liabilities at end-2020 (see Norwegian Export Credit Guarantee Agency's website).

Export Credit Norway
Export Credit Norway is a public limited company and not a financial institution, but is included here since its main purpose is to provide financing. Export Credit Norway manages the export financing scheme on behalf of the government and under the

auspices of the Ministry of Trade, Industry and Fisheries. The export financing scheme is regulated by the Export Credit Act and the regulation relating to the export financing scheme. The purpose of the company is to provide credit in order to promote Norwegian exports. Norwegian and foreign companies can apply for credit from Export Credit Norway for the purchase of goods and services from Norwegian exporters. Borrowers come from all over the world.

All Export Credit loans are recorded on the government's balance sheet and are guaranteed either by government export guarantee institutions like GIEK and/or financial institutions with a good credit rating. The government is responsible for Export Credit Norway's obligations related to its lending activities. The company has been in operation since 1 July 2012, when it took over the function previously held by Eksportfinans ASA, and at end-2020 its lending portfolio totalled NOK 51bn (see Export Credit Norway's website).

insurance is that a large number of people are exposed to the same type of risk of financial loss. As such a loss will not occur at the same time for everyone, it is an advantage to join a risk-sharing arrangement, via an insurance undertaking, in order to distribute risk among its members (customers). A necessary condition for such an arrangement to function is that there are a sufficient number of customers who want to insure themselves against this risk. A loss incurred by an insured party is covered by the insurance undertaking. The policyholder makes a regular, recurring payment, known as a premium, to the insurance undertaking. The insurance undertaking uses these premiums to build up reserves that can be drawn down in the event of losses. Mutual fire insurance companies were among the first insurance companies in modern times. They arose in the wake of the great fires of London and Copenhagen. Fire insurance companies could distribute losses among a large number of members who faced a risk of fire, at the same time as a fire would seldom affect many members at the same time. The first fire insurance company in Norway was Christiania Brand-Assurance-Casse, founded in 1753, and was based on voluntary membership by homeowners in Christiania (now Oslo).

Insurance premiums are calculated as expected loss plus an amount to cover the cost of operating the insurance scheme. A basic principle in insurance is that the insurance premium paid by the customer should be commensurate with the risk taken by the insurance undertaking. This could in principle indicate a pricing of the insurance premium at the individual level. However, this could easily be perceived as unfair and could be difficult to implement in practice. Customers who are able to hold back information about their risks are more likely to subscribe to an insurance policy and the premium will be lower than implied by the level of risk assumed by the insurance company. A higher take-up rate of high-risk customers is called adverse selection. Since income from premiums is supposed to cover expected expenditure, the company will have to increase its premiums. Normal-risk customers may then be reluctant to take out insurance, which in turn increases the ratio of high-risk customers. In a worst-case scenario, the insurance undertaking could be forced to withdraw the insurance product.

2.6.1 Types of insurance

Insurance can be classified in several ways. Based on the type of risk covered by the policyholder's insurance contract, insurance can be divided into life insurance, non-life insurance and credit insurance. Life insurance products can be divided into two main groups: pension insurance and insurance that normally provides a one-time payment in

THE PENSION SYSTEM IN NORWAY

The pension system in Norway comprises three parts:

- State pensions under the National Insurance Scheme, with universal coverage.
- Employer-financed pensions, often called occupational pensions, supplement the state pension and are agreements between a company and its employees to provide pension benefits in addition to the state pension (collective pension agreements). Companies can purchase pension benefits from a life insurance company or organise pensions through their own pension funds. In addition to collective pension agreements, all public sector employees are eligible for contractual early retirement pensions, as are employees of private enterprises with a collective bargaining agreement that allows contractual early retirement. Contractual early retirement pensions are financed by the employer and the government.
- Individual savings and pension schemes.

Occupational pensions have been mandatory in Norway since 2006. It became compulsory for private sector businesses to establish an occupational pension scheme (primarily in businesses with more than one employee). Occupational pensions are a tax-favoured form of saving in Norway. Premiums are tax-free up to a certain limit, while pension benefits are taxed in line with other income. A central feature of collective pension agreements in Norway in recent years is the transition from defined-benefit to defined-contribution occupational pension schemes. The most important difference between the two schemes is related to who bears the return risk on the accumulated assets in the period until benefits are paid (accumulation period).

In a defined-benefit pension scheme, retirement benefits are paid as a predetermined percentage of the employee's final earnings at the agreed pension age. With this scheme, pension payments are predictable for the employee. The employer pays an annual premium into the pension scheme. The size of the premium depends on factors such as the employee's years of service, age, wage level and the return achieved by the life insurance undertaking. The employee bears no risk for the return on accumulated contributions. A defined-benefit pension scheme provides a guaranteed future rate of return on contributions from the insurance undertaking or the pension fund. The guaranteed rate of return will determine the size of the premium payments needed to provide the predetermined future pension. The low interest rate level of the past few years has made it more difficult for insurance companies and pension funds to fulfil the return guarantee.

In a defined-contribution pension scheme, the level of pension payments will depend on the size of the contributions (pension capital) and the return on this capital. The costs of the scheme, ie the premiums to be paid, are predictable for the employer. The employee bears all the risk related to returns on pension capital. In a defined-contribution scheme, annual contributions must be at least 2% of employee earnings between 1 G and 12 G (G is the social security base amount, which is NOK 106 399 in 2021).

Pension capital is still highest in the defined-benefit pension schemes, but premiums for the defined-contribution schemes operated by Norwegian insurance companies are now higher than for the defined-benefit schemes.

An employee who leaves a private business that has a defined-benefit pension scheme receives a paid-up policy. Paid-up policies are insurance contracts that do not require additional premium payments and entitle the holder to future pension payments. An employee will also receive a paid-up policy if the business chooses to discontinue the defined-benefit scheme in favour of a defined-contribution scheme or if the business closes down.

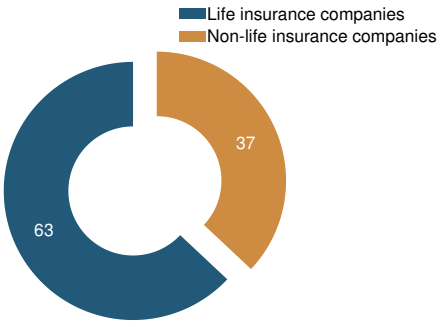
the event of disability or death. Pension insurance provides payments over a number of years in the event of disability, death or achieving pension age (see box: **The pension system in Norway**).

Insurance can also be classified by the insured object (person, property or asset insurance). Examples of insurance of the person are pension, health and accident insurance. Insurance of property includes fire, auto and theft insurance. Examples of insurance that can serve to protect assets are liability insurance and credit insurance.

A distinction is also commonly made between cases where the insurance undertaking is the original issuer of the insurance contract (primary insurance) and cases where some of the liability has been taken over by another undertaking (reinsurance). Even insurance companies need to insure themselves against major unforeseen events or a large number of claims, eg large pay-outs owing to natural disasters such as earthquakes and floods, and reduce risk by purchasing reinsurance for this purpose.

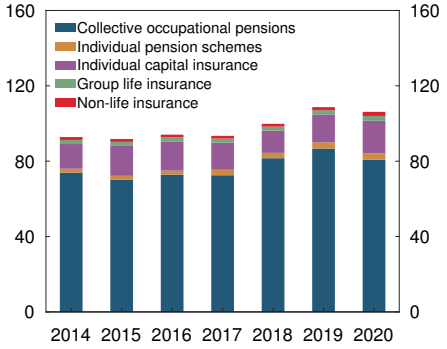
Life insurance accounts for the largest share of the insurance market in Norway, representing about 60% of the income from premiums (Chart 2.10). Most premium income at life insurance companies is derived from pension insurance (Chart 2.11). Pension insurance comprises collective occupational pensions and individual pension schemes. For pension insurance, the insurance premium includes a substantial saving element, and the insurance company manages these funds until the time comes for benefits to be paid out. As a result, insurance premiums and total assets for life insurance companies are high compared with non-life insurance companies (Chart 2.12).

Chart 2.10 Insurance companies in Norway
Market share by premium income. Percent. Data for 2020



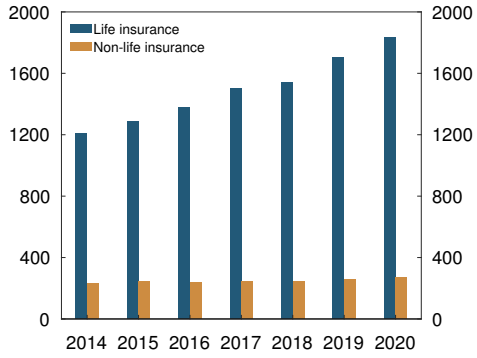
Source: Statistics Norway

Chart 2.11 Life insurance companies' premium income by segment
In billions of NOK



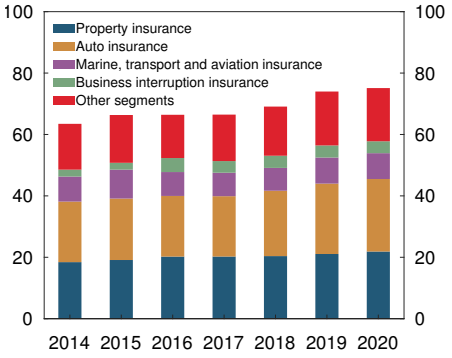
Source: Statistics Norway

Chart 2.12 Insurance companies' total assets
In billions of NOK



Source: Statistics Norway

Chart 2.13 Non-life insurance companies' premium income by segment
In billions of NOK



Source: Statistics Norway

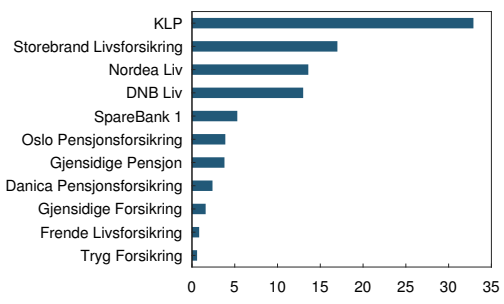
Auto insurance and property insurance make the largest contribution to non-life insurance companies' premium income (Chart 2.13), followed by marine, transport and aviation insurance.

In 2020 Q4, there were 18 life insurance companies and 79 non-life insurance companies in Norway. Ranked by premium income, KLP, Storebrand Livsforsikring, Nordea Liv and DNB Livsforsikring are the largest life insurance companies (Chart 2.14). Gjensidige, If Skadeforsikring, Fremtid Forsikring and Tryg are the largest companies in the non-life market (Chart 2.15).

Insurance companies' main assets are Norwegian and foreign bonds, commercial paper, equities and property. Liabilities chiefly comprise customer claims. Claims are calculated as the present value of future payments to policyholders. These are referred to as technical provisions.

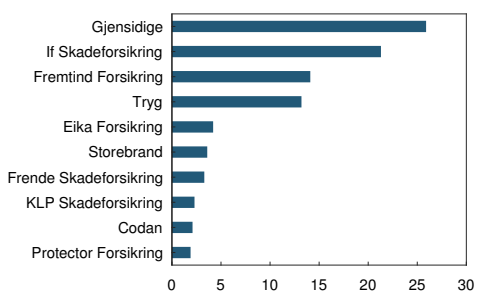
For the insurance market to function efficiently, customer confidence in the integrity of insurance contracts is important. This is especially true of contracts for long-term pension saving. Insurance companies are therefore subject to specific regulation to safeguard the rights of customers (see box: **Regulation of insurance companies**).

Chart 2.14 Market breakdown of life insurance by premium income
Percent. Data for 2020 Q4



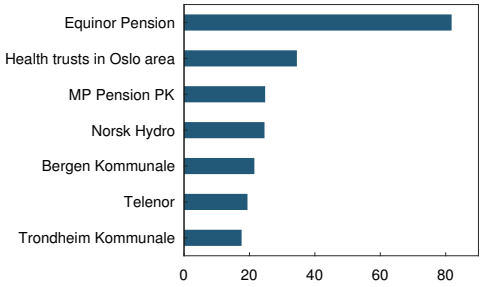
Source: Finance Norway

Chart 2.15 Non-life insurance market shares by premium income
Percent. 2020 Q4



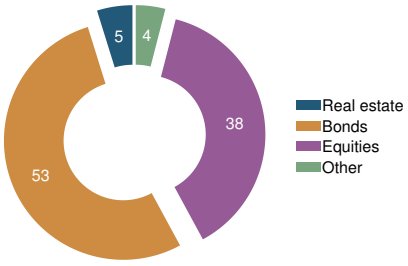
Source: Finance Norway

Chart 2.16 The largest private and public (municipal) pension funds
Total assets in billions of NOK.
At 31 December 2020



Source: Finanstilsynet

Chart 2.17 Pension funds' assets
Based on a sample of pension funds. Percent of total assets. At 31 December 2020



Source: Finanstilsynet

2.7 Pension funds

In Norway, occupational pension savings are managed by both life insurance companies and pension funds. A pension fund is an autonomous institution established by a private business or the public sector offering one or more collective occupational pension schemes. There were 83 private and public sector pension funds in Norway at end-2020. The largest of these are shown in Chart 2.16. Pension funds in Norway hold total assets of about NOK 421bn. At end-2020, 53% of pension fund assets were invested in bonds and 38% in equities (Chart 2.17).

While life insurance companies are regulated under Solvency II (see box: **Regulation of insurance companies**), pension funds are regulated under the Institutions for Occupational Retirement Provision (IORP) Directive. However, from 1 January 2019, pension funds must comply with a capital requirement based on a simplified application of the rules under Solvency II.

REGULATION OF INSURANCE COMPANIES

The current solvency framework for insurance companies in the EEA, Solvency II, was adopted by the EU in 2009 and introduced in January 2016, but with long transitional arrangements. Solvency II does not apply to pension funds. Solvency II is more sensitive to risk than the previous framework, Solvency I.

Under Solvency II, both assets and liabilities are calculated at market value. The market value of liabilities is calculated by discounting future liability cash flows using risk-free market rates. The capital requirement is determined by a stress test, which ensures that the insurance undertaking will be able to withstand severe shocks to factors (such as equity and bond prices) that affect the insurance undertaking's equity capital.

A low interest rate environment is challenging for life insurance companies under Solvency II. With low interest rates, the current value of insurance liabilities is increasing. At the same time, life insurance companies are finding it increasingly difficult to achieve sufficient returns to meet the minimum return guarantee on contracts that include such a guarantee.

Statens pensjonskasse (SPK, the Norwegian Public Service Pension Fund) is not included in the figures for pension funds. SPK administers occupational pension schemes for employees in the public sector and state-owned companies. SPK also administers the pension scheme for some groups in the local government sector and the private sector. The Storting (Norwegian parliament) determines the framework and lays down regulations for SPK pursuant to the Act relating to SPK. SPK members pay a portion of their salary as a pension contribution. Employer contributions are only paid by businesses generating revenues. The portion of annual pension payments that is not covered by contributions is financed by government subsidies. SPK is therefore not a fully funded, but a pay-as-you-go pension scheme.

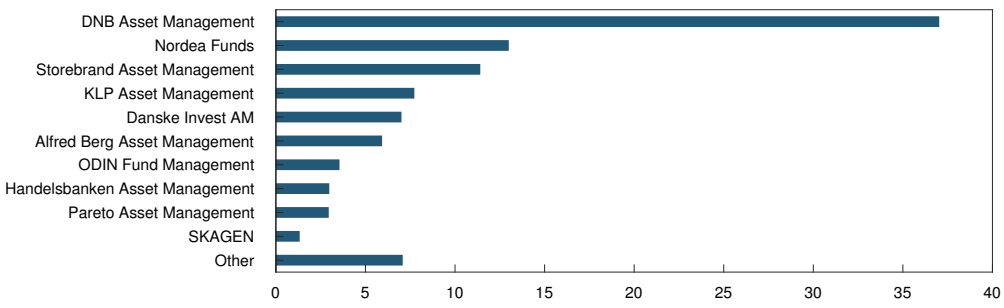
Kommunal Landspensjonskasse (KLP) provides pension, financial and insurance services for local authorities, health trusts and public sector enterprises and offers defined contribution occupational pensions for private sector firms. KLP is organised as a mutual insurance undertaking. This means that when a pension scheme is established, KLP customers invest capital and thus become the company's owners. KLP's main product is occupational pensions for municipal employees. KLP pension schemes are fully funded. At end-2020, public sector pension scheme assets accounted for NOK 652bn of the KLP group's total assets of NOK 807bn.

2.8 Mutual funds

A mutual fund, or securities fund, is a collective investment scheme whereby a large number of unitholders pool their investments in securities markets. A securities fund management company authorised by Finanstilsynet administers and manages the assets in the portfolio. Fees and other charges, deducted from the assets under management, cover the security fund management company's expenses. Thus, unit holders are charged for the management of the fund.

Capital from unit holders in mutual funds goes to financing issuers of securities. There may be a number of advantages for an investor in investing in a mutual fund rather than in individual equities and bonds. First, mutual funds can benefit from economies of scale, which lowers costs. One example of this is reduced costs for analysing and selecting securities. Second, it is easier to spread risk across a large number of securities. This is known as diversification. Third, professional investment managers may potentially be able to offer better returns and risk management. Among the drawbacks of mutual funds are that investors have less influence on investment decisions and that mutual funds involve the payment of fees and other charges to the mutual fund management company.

Chart 2.18 Market shares of mutual fund management companies
Percent. At 31 December 2020



Source: Norwegian Fund and Asset Management Association

Diversification means spreading risk by allocating investments across several securities. Since different securities rarely involve the same risk or move exactly in tandem, total risk in a diversified portfolio will be lower than if the investment were allocated to only one security.

Fund management companies can be owned by banks, insurance companies or others (Chart 2.18, which shows the largest fund managers). Each management company usually offers a large number of funds with differing investment profiles.

2.8.1 Mutual funds classified by asset

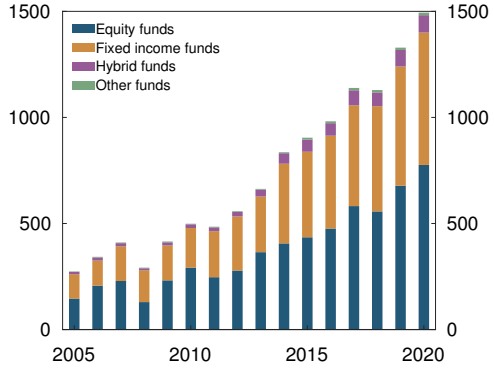
Assets under management by mutual funds in Norway totalled NOK 1 493bn at end-2020. These funds can be classified by investment instrument (Chart 2.19):

- Equity funds invest in equities and account for about half of total assets under management by mutual funds.
- Fixed income funds also account for a substantial share and invest in fixed income instruments. Although the majority of fixed income funds are bond funds, they also include money market funds and "other fixed income funds".
- Balanced funds invest in both equities and fixed income securities.
- Other funds include Alternative Investment Funds (AIF), also called specialised funds and hedge funds. These funds have modest levels of assets under management in Norway.

Total capital in mutual funds rose by 12% in 2020, or NOK 165bn. Most of the rise reflects higher equity prices and thus an increase in the value of equity fund units. The NOK 54bn in net fresh capital was primarily invested in fixed income funds (Chart 2.20).

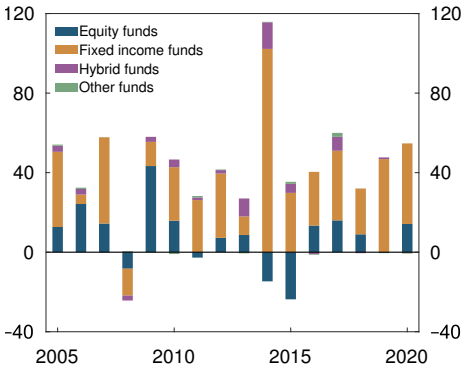
Units in Norwegian mutual funds are primarily owned by life insurance companies and pension funds (Chart 2.22). They hold a substantial share of units of bond funds and

Chart 2.19 Assets under management by mutual funds, by type of fund.
In billions of NOK. At year-end. 2005–2020



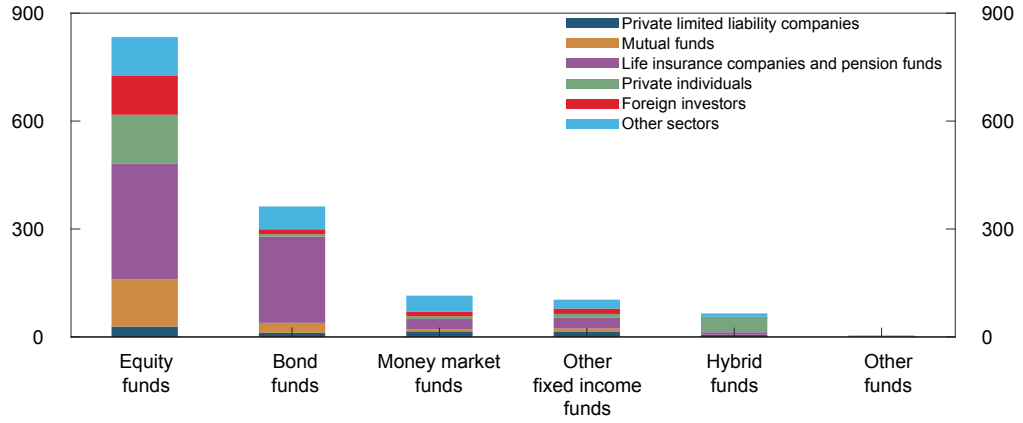
Source: Norwegian Fund and Asset Management Association

Chart 2.20 Mutal fund net subscription.
In billions of NOK. 2005–2020



Source: Norwegian Fund and Asset Management Association

Chart 2.21 Mutual fund unit holders
Holdings in billions of NOK. At 31 December 2020



Source: Statistics Norway

equity funds. Private individuals primarily hold units in equity funds and balanced funds, but to a limited extent in bond funds.

In addition to investing in NOK-denominated assets, mutual funds invest in foreign assets denominated in foreign currencies. The NOK value of such fund units thus depend on exchange rate movements. To hedge against exchange rate volatility, these funds often use foreign exchange derivatives. These derivatives usually have a term of three months and are rolled over at maturity. In the event of large unforeseen exchange rate movements, it may be necessary to adjust the amount being hedged or meet counterparty margin calls if the value of the derivative contract moves against the fund, ie resulting in a gain for the counterparty (see Norges Bank's *Financial Stability Report* 2020 and *Staff Memo* 2/2021, Norges Bank, "Bond market fire sales and turbulence in the Norwegian FX market in March 2020" for a discussion of such a case in March 2020).

2.8.2 Other classifications of mutual funds

Mutual funds can also be classified by their form of management or how the investment units are traded. Funds are commonly classified as passively or actively managed funds, exchange-traded funds or so-called funds of funds.

Passively managed funds seek to recreate developments in a given portfolio of securities (the benchmark index). These funds are therefore often called index funds. An equity index fund may aim for the same return as the benchmark index by holding a portfolio of equities that is approximately the same as the benchmark index. For liquidity reasons and to reduce costs, index funds may refrain from holding equities that represent only a small share of the benchmark index. The fund's return is nevertheless expected to closely track the index.

Actively managed funds try to "beat the index", ie obtain a higher return than the index at the same level of risk. The manager then carefully selects investments, buying and selling stocks when changing market conditions offer opportunities for higher returns. With analyses and frequent purchases and sales of securities, the cost of active management is higher than for passive management. Examination of returns for the various funds shows that few actively managed funds have outperformed index funds over time.[5]

5 See, for example, Fama, E.F. and K.R. French (2010): "Luck versus Skill in the Cross-Section of Mutual Fund Returns", *Journal of Finance*, Vol. LXV no 5.

Although exchange-traded funds (ETFs) have been one of the most rapidly growing segments in the global financial market, there are few of these funds in Norway. ETFs are traded over a stock exchange like equities and may be either index or actively traded funds. At end-2020, there were four exchange-traded funds on Oslo Børs.

Some mutual funds are so-called funds of funds. These funds invest in other funds and thereby easier achieve diversification of risk, although for investors this often means more expensive management, with fees payable both to the fund itself and to the funds that make up the portfolio.

2.8.3 Regulation of mutual funds

The Securities Fund Act regulates the organisation and scope of mutual funds and fund management companies. Mutual funds are regulated to safeguard the interests of their unit holders, for example by ensuring that investments are diversified to spread risk and that unit holders receive information about historical returns, risk and costs. Finanstilsynet is responsible for supervising management companies to ensure that they operate in compliance with legislation. All Norwegian mutual funds are subject to approval by Finanstilsynet.

2.9 Other financial institutions

2.9.1 Finance companies

Finance companies mainly provide short-term loans in the form of leasing, factoring, debt instrument loans for the corporate sector and consumer loans, often credit card loans. The loans are primarily financed through short-term borrowing. Finance company lending totalled around NOK 220bn at end-2020. Approximately 30% of finance companies in Norway, measured by lending volume, are foreign companies with branches in Norway.

Factoring is a form of corporate financing whereby a business sends its accounts receivable (invoices) to the finance company, which then immediately pays (lends) about 80% of the value of these invoices to the business. The finance company receives payment for the invoices and transfers the balance to the business minus fees and interest.

2.9.2 Securities firms

Securities firms or investment firms act as intermediaries in securities markets and are authorised by Finanstilsynet to offer investment services related to financial instruments. Securities firms have a crucial role in secondary market trading of financial instruments and in providing underwriting services for companies issuing stock on the primary market, known as corporate services. The most important services offered by securities firms, in addition to traditional brokerage and services, are investment advisory services, analysis and guaranteeing full subscription of an issue.

Securities firms also provide active management of investors' portfolios on an individual basis and as authorised by the investor. To prevent conflicts of interest between clients and between the firm and its clients, systems and physical information barriers must be established between active management and other business areas.

Securities firms are regulated by the Securities Trading Act and are subject to supervision by Finanstilsynet. Extensive statutory requirements govern securities firms' activities and organisation. The firm must be structured in such a way that the risk of conflicts of

interest is kept to a minimum. In addition, the firm's management and owners must be fit to manage and own a securities firm.

At end-2020, there were 97 securities firms with a Norwegian licence. Of these, 18 were banks authorised to operate as securities firms. In adiition, there were 21 branches of foreign securities firms.

2.9.3 Investment companies

Investment companies are companies with one or more owners, established to invest in an underlying portfolio of assets, normally on behalf of a number of investors. The company's structure is often based on formal agreements of management and administration. Investment companies mostly invest in equities, bonds and real estate. As they are not financial institutions, they do not need a special license to operate and are not subject to supervision by Finanstilsynet.

2.9.4 Venture capital companies

Venture capital companies are a type of investment company that invests in unlisted companies. They offer equity or debt capital financing to start-ups, often companies in the technology sector. Investment is motivated by the prospect of a future sale or listing. Debt capital is often provided in the form of convertible bonds, which investors can convert into shares at a later date. Venture capital companies are often organised as financing partnerships between institutional investors and affluent private individuals.

According to Menon Economics, Norwegian funds that invest in unlisted companies (often referred to as private equity funds) invested NOK 9.5bn in 2020. The distribution of invested funds was as follows: NOK 7.9bn in buyout funds, NOK 1.2bn in venture funds and NOK 0.3bn in seed funds.

2.9.5 Crowdfunding

The development of digital platforms has increased the range of funding options. Crowdfunding is the practice of funding a business or a private individual by raising financial contributions from a large number of people. With traditional funding models, a limited number of investors, sometimes only one bank or a few large investors, are asked to invest a substantial amount. In contrast, crowdfunding uses online platforms to reach many small potential investors who may each wish to invest relatively small amounts.

A funding transaction involves three different types of agents: investors who invest (crowdfunders), a company or a private individual seeking funding and the crowdfunding company that facilitates the funding via an online platform.

Financial crowdfunding can be divided into two categories:

- *Lending-based crowdfunding (peer-to-peer lending (P2P))*. The crowdfunder (the lender) lends money to the company or the private individual (the borrower). The loan is brokered by a crowdfunding company via an online platform.

- *Equity-based crowdfunding*. The crowdfunder pays an amount in return for ownership in a company in the form of unlisted shares. The crowdfunding offering is brokered by a crowdfunding company via an online platform.

Financial crowdfunding is typically used to raise capital to fund small projects, but private individuals can also receive access to consumer credit via crowdfunding digital platforms. Most financial crowdfunding platforms facilitate financing for small and medium-sized

enterprises (SMEs). SMEs can often find it difficult to obtain a bank loan or raise equity capital in securities or venture capital markets. Financial crowdfunding allows individuals to invest directly in projects or companies that they would not have had easy access to otherwise. For companies, the cost of raising capital can be lower. Crowdfunding can thus increase value added if other potentially profitable projects are realised as a result.

The term crowdfunding also includes non-financial crowdfunding:

- *Donation-based*. Worthy causes and small companies and projects can apply for funding on such platforms. The funder does not receive any compensation.

- *Rewards-based*. Support for more commercial projects where the funder pledges an amount and receives a reward from the project owner such as a discount on the future product (pre-sale) or a product sample.

Crowdfunding has grown rapidly in a number of countries. Crowdfunding is widespread in China and the US, while the largest crowdfunding market in Europe is the UK (see *Official Norwegian Reports (*NOU) 2018: 5 Kapital i omstillingens tid — Næringslivets tilgang til kapital [Capital in a time of restructuring – access to capital in the business sector] (Norwegian only) for more information).

Although the Norwegian crowdfunding market is still small compared with other countries, it has grown in recent years. Based on data reported by the industry, the size of the Norwegian market in 2020 was around NOK 890m, ie approximately double the previous year.[6]

Currently, there is no common international and harmonised regulation of financial crowdfunding. A new EU crowdfunding regulation will enter into force on 10 November 2021. The regulation has EEA relevance, but has not been incorporated into the EEA Agreement. The regulation covers providers of both equity- and loan-based crowdfunding services. Projects financed under the regulation must be for business activities only and only in an amount of up to EUR 5m. Crowdfunding services for consumers falls outside the scope of the regulation.

Crowdfunding platforms in Norway are currently subject to different rules depending on the operating model. Equity-based crowdfunding is regulated by the Securities Trading Act and Alternative Investment Fund Act, while loan-based crowdfunding is regulated by the Financial Institutions Act and the Financial Contracts Act. Both loan-based and equity-based platforms are subject to money laundering regulations. In the Financial Institutions Regulation, the Ministry of Finance has exempted lending by loan-based crowdfunding platforms from a licensing requirement when certain conditions are met.[7]

In the Financial Markets Report, the Government stated that it would facilitate crowdfunding by simplifying the rules for the industry and increasing consumer protection. In November 2020, the Ministry of Finance tasked the Securities Act Commission with assessing Norwegian implementation of the new EU rules, as well as the national rules for extending loans to consumers via crowdfunding platforms. The commission will publish its report by 1 September 2021.

6 The size of the Norwegian market and discussion of the crowdfunding rules are based on Meld. St. 31 (2020–2021), *Financial Markets Report* 2021 (Norwegian only).
7 The platforms must be operated by a lending broker or finance company, and the lender's total loans may not exceed NOK 1m annually.

3 Financial infrastructure

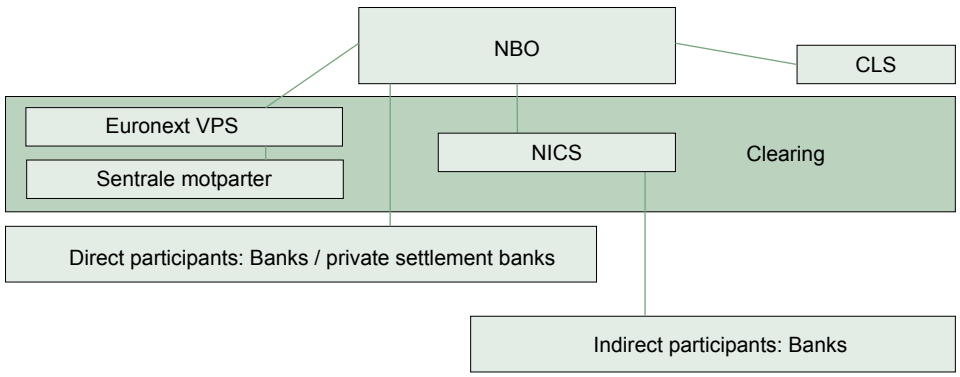
The financial infrastructure refers to the systems that enable economic agents to conduct financial transactions, from everyday card payments in shops to trades in the securities and foreign exchange markets. Examples of the financial infrastructure are payment systems, securities settlement systems, central securities depositories (CSDs), central counterparties (CCPs) and trade repositories. The financial infrastructure comprises both the technical systems and the agreements and regulations governing their use. This publication treats cash as part of the financial infrastructure.

A payment system can be divided into "systems for payment services" and "interbank systems". A payment service system is the part of the payment system that is aimed at customers and that makes it possible for consumers and firms to withdraw cash from their bank accounts, use payment cards and make online payments. An interbank system is a system that enables banks to settle payments among themselves.

At the core of the Norwegian interbank system are Norges Bank's settlement system (NBO) and the Norwegian Interbank Clearing System (NICS) (Chart 3.1). NICS calculates what the banks owe each other based on all of the payments made by their customers. The result of this clearing process is sent five times daily to NBO, where the balances on the banks' accounts with Norges Bank are adjusted accordingly. *(*Read more about NBO in Section 3.2.1 *Norges Bank's settlement system (NBO)* and about NICS in Section 3.2.2 *The Norwegian Interbank Clearing System (NICS)*).

As banks' currency trading runs into the hundreds of billions of kroner a day, losses can be heavy if a counterparty is unable to fulfil its obligations. To limit this risk, a global multi-currency bank called CLS was created (see Section 3.2.3 *Foreign exchange settlement risk and the CLS foreign exchange settlement system*), with a view to preventing the risk of losses in the settlement of currency trades by ensuring that one side of a trade is not paid unless the other side has also been paid.

Chart 3.1 The Norwegian payment system



Source: Norges Bank

SINGLE EURO PAYMENTS AREA (SEPA)

SEPA is a European initiative for common payment solutions. The aim is to create a single European platform for payment systems instead of having national systems with different formats and prices. The basis for SEPA was laid in an EU regulation in 2001 stipulating that the cost of cross-border transactions in EUR between EEA countries must be the same as the cost of a domestic transaction. The regulation applies to the price of payments in euros. It has been implemented in Norway and applies to EUR payments to and from Norway, but not to payments in Norwegian kroner.

The securities settlement system (VPO) covers settlement of cash and securities. Payment for the securities is settled at Norges Bank and the actual securities are transferred through Euronext VPS. Euronext VPS owns and operates the Norwegian central securities depository, where ownership of securities is documented. (Read more on the Euronext VPS website.)

CCPs play an important role in financial markets (see Section 3.4 *Central counterparties*). They enter into trades in financial instruments and become the buyer for the seller and the seller for the buyer. The risk of one of the parties to a trade being unable to fulfil its side of the bargain – known as counterparty risk – is thus transferred to the CCP, which guarantees that the trade will be completed. Since April 2010, Oslo Børs has required all equities traded on the exchange to be settled through a CCP.

3.1 Retail payment services

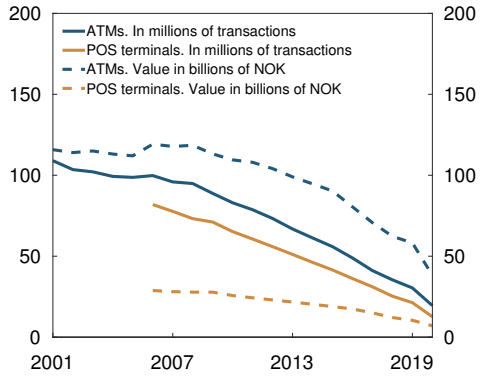
Retail payment services generally cover payments between households, businesses and government authorities, which are relatively low in value, but high in number. A distinction is drawn here between means of payment and payment instrument.

A means of payment is a claim that is transferred between buyer and seller as payment for goods and services. There are two main means of payment: cash, which is a claim on Norges Bank, and bank deposits (deposit money), which are claims on banks (see box: **What is money?** in the introduction). Electronic money (e-money) is a third means of payment and consists of digital value units that are used only for electronic payments. Customers can make e-money payments using both prepaid cards and balances on e-money accounts.

Payment instruments are the ways in which means of payment are transferred. These can be divided into three main groups: cash, payment cards and bank transfers (such as online payments).

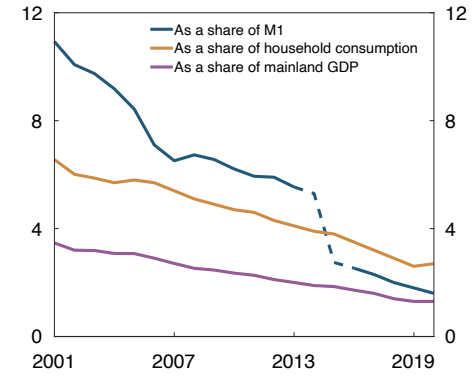
Cards and cash are primarily used for point of sale payments, while cards and bank transfers are more commonly used for remote payments where buyer and seller do not physically meet. To further facilitate cross-border payments, EU countries are working together to develop common payment solutions (see box: **Single Euro Payments Area (SEPA)**).

Chart 3.2 Cash withdrawals from ATMs and POS terminals



Source: Norges Bank

Chart 3.3 Value of cash in circulation
Percent



Sources: Statistics Norway and Norges Bank

3.1.1 Cash

Cash is both a means of payment and a payment instrument. Norwegian banknotes and coins constitute a claim on Norges Bank and share some similarities with a promissory note. This means that the note or coin itself represents a financial value, and settlement between buyer and seller takes place immediately when the notes and coins are handed over.

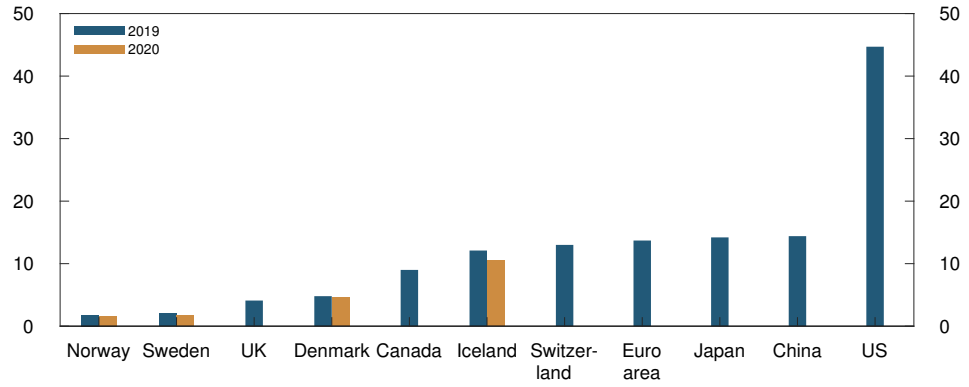
Deposit money can be converted into cash over the counter at a bank branch or post-in-shop, by making a withdrawal from an ATM or at a point-of-sale (POS) in connection with a goods purchase (cash-back). Conversely, cash can be converted into deposit money over the counter at a bank branch or post-in-shop or using a bank's cash deposit machine. Deposit money is converted into cash and vice versa at face value (NOK 100 in deposit money is converted into NOK 100 in cash). The average size of an ATM withdrawal was just over NOK 1 900 in 2020, while the average POS withdrawal was just over NOK 500.

Cash is legal tender in Norway. Under the Financial Contracts Act, a consumer has the right to settle an obligation to a payee in cash. The payee is not, however, obliged to accept more than 25 coins of any one denomination. The Financial Institutions Act requires banks to accept cash from customers and make deposits available to customers in the form of cash, in line with customers' needs and expectations. This means that banks must provide the facilities to enable customers to convert deposit money into cash and vice versa. Deposit money is a generally accepted means of payment but is not legal tender.

The share of cash payments has fallen in recent years. Both ATM and POS withdrawals are in decline (Chart 3.2). Surveys and data collection suggest that approximately 3%-4% of point-of-sale and person-to-person (P2P) transactions in 2020 were made using cash.

The value of cash in circulation has fallen slightly in recent decades but has fallen more as a share of total money (M1), household consumption and mainland GDP (Chart 3.3). The share amounted to 1.6% in 2019, which is very low compared with other countries (Chart 3.4).

Chart 3.4 Cash as a share of means of payments (M1) in selected countries
Percent. 2019 and 2020 (Nordic countries)



Sources: BIS, Central Bank of Iceland, Danmarks Nationalbank, ECB, Statistics Norway, Statistics Sweden and Norges Bank

3.1.2 Payment cards

There are three main types of payment card: debit cards, charge cards and credit cards.

A debit card is issued by a bank and is linked to a bank account. Transactions are debited directly from the cardholder's account. A charge card does not debit the cardholder's account directly. Instead, the card issuer accumulates purchases over a given period and bills the cardholder the total amount. A credit card works like a charge card but gives the cardholder the option of credit. This means that the cardholder can choose to pay off all, part or none of the balance on the card. Any amount unpaid is rolled over to the next period, and interest accrues on it.

BankAxept is Norway's domestic debit card system. Owned and operated by banks in Norway through a limited company, it is by far the most widely used system in Norway. However, the use of international cards is growing rapidly. These are payment cards issued in Norway by Norwegian banks or card companies under licence from international card systems such as Visa and MasterCard. These can be debit cards, charge cards or credit cards (see box: **How does a BankAxept card payment work?**).

There were 12.8m payment cards in issue in Norway at end-2020. The most common types are co-badged, combining BankAxept and an international debit card. More than half of issued payment cards are of this type, while slightly less than one in four cards is an international credit card. In 2020, the most common way of paying with a payment card was still using chip and PIN in a physical payment terminal.

However, contactless payments are becoming increasingly common. These primarily use either a physical card or a mobile phone on which the card details are stored electronically. Communication between the payment terminal and the payment card or phone uses wireless technology: payment is made by holding the card/phone close to the payment terminal. The user does not normally need to enter a PIN if the payment is below a certain amount.

Payment cards are also used for remote payments, mainly when buying goods online. In this case, users enter their card details and approve payments in an online payment terminal direct from their own computers. Alternatively, the process can be simplified using digital wallets.

HOW DOES A BANKAXEPT CARD PAYMENT WORK?

Seven out of ten card payments in Norway are made with a BankAxept card. Most of these payments are debit card transactions. The majority of BankAxept cards also include another payment solution, generally Visa, but in practice, BankAxept is automatically selected by most payment terminals unless the payer actively chooses the alternative payment solution.

To be able to accept payments using BankAxept cards, a point of sale (the merchant) must have an agreement with both BankAxept and a bank that guarantees settlement of these transactions. Settlement means that the merchant's account is credited with all payments made with BankAxept cards using the shop's payment terminals in a given period. The terminals themselves can be rented or purchased from banks or other suppliers. Payers must have an agreement with a bank to link a BankAxept card to their account.

What happens when a payment is made with a BankAxept card?
When a customer uses a BankAxept card, the terminal reads the data on the card and asks the customer to enter a PIN. A request to authorise the payment is then generated. This is sent to a central payment processor, which checks that the correct PIN has been used and that the request comes from a genuine terminal at a real merchant. The authorisation request is then forwarded to the issuing bank (the cardholder's bank) (Chart 3.5).

The issuing bank checks that the criteria for authorising the transaction have been met: that the card has not been blocked and that there are sufficient funds. The response (yes or no) is sent by the issuing bank to the processor, which then forwards it to the terminal at the point of sale, where the result is displayed on the screen. All of this normally takes place in less than half a second.

NICS performs interbank clearing and settlement (see Section 3.2.2 *The Norwegian Interbank Clearing System (NICS)*). Clearing and settlement of these transactions take place five times each weekday. Until settlement, a hold is placed on the authorised amount in the payer's account so that this money cannot be spent twice. After settlement in Norges Bank, NICS sends the transaction data to the acquiring bank (the merchant's bank) for the merchant's account to be credited, and to the issuing bank for the payer's account to be debited.

Chart 3.5 BankAxept payment process

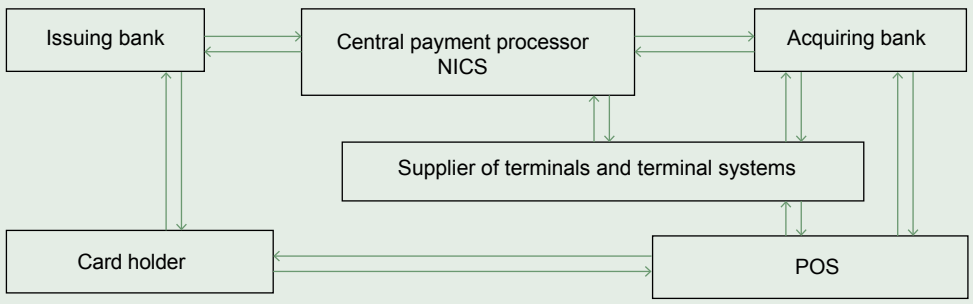
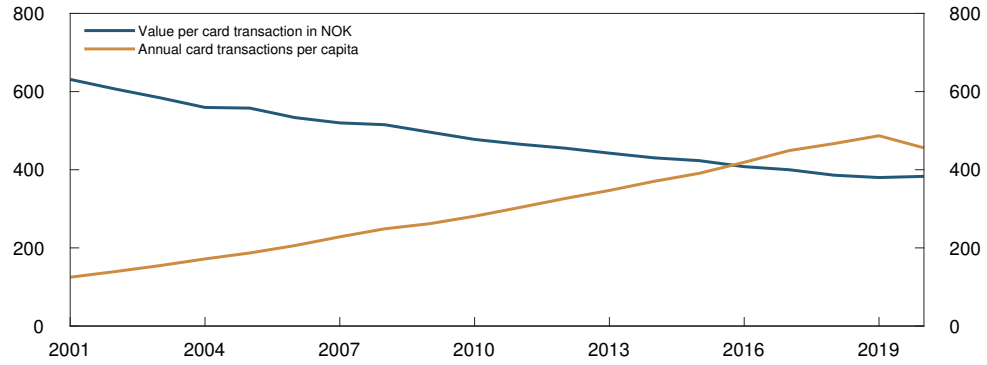


Chart 3.6 Annual card transactions per capita and value per card transaction in NOK



Source: Norges Bank

Some businesses, such as some supermarket and filling station chains, also issue cards for payment purposes. These cards can only be used in the issuer's outlets and are therefore not regarded as proper payment cards.

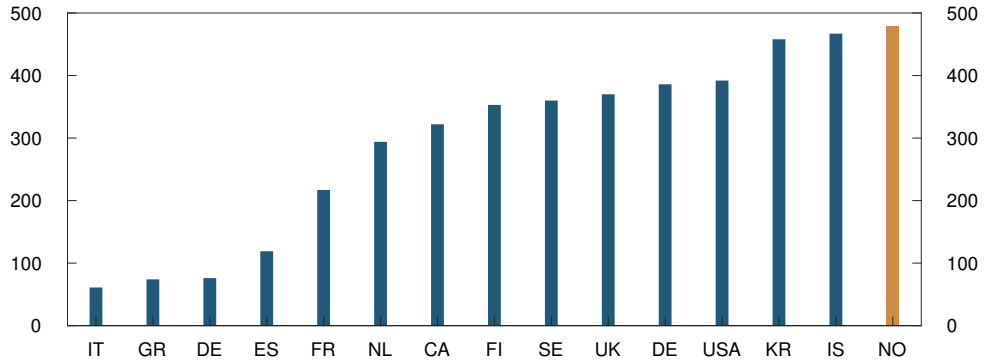
The number of goods and services purchases made using payment cards has grown rapidly over time, partly because of a rise in the total number of payments (increased spending) and partly because card payments have to some extent replaced cash payments.

There were close to 2.4bn card transactions in 2020 (goods and services purchases and cash withdrawals), or an average of 456 transactions per capita (Chart 3.6). The average value of these transactions was NOK 383.

Norway has one of the highest levels of card usage in goods and services purchases (Chart 3.7). At the other end of the scale are the Mediterranean countries and Germany. Germany is one of the advanced economies where card usage is lowest. On average, German consumers use a payment card a little more than once a week.

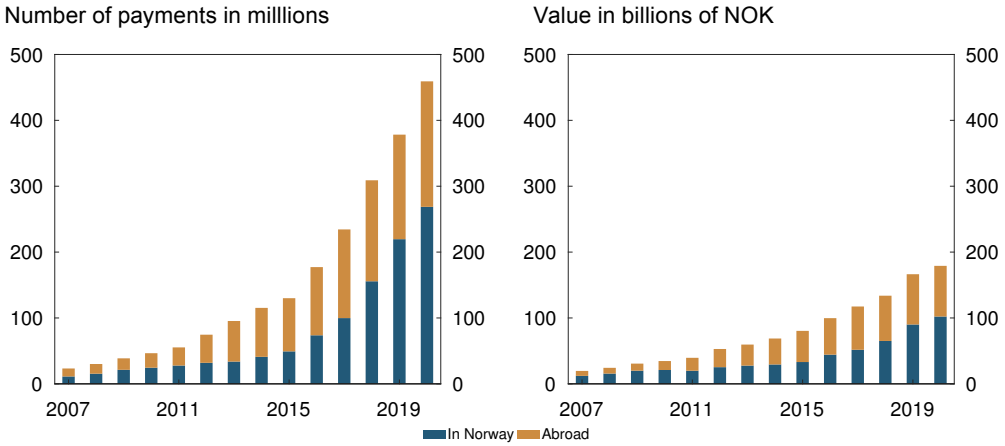
Online payments have seen strong growth in recent years (Chart 3.8). In 2020, there were 459m such transactions using Norwegian payment cards. Payments to Norwegian websites each account for somewhat over half of online payments.

Chart 3.7 Card transactions per capita in selected countries
2019



Sources: BIS, Central Bank of Iceland, ECB and Norges Bank

Chart 3.8 Online payments using Norwegian payment cards



Sources: BIS, Central Bank of Iceland, ECB and Norges Bank

The total value of online payments in 2020 was NOK 179bn. The average value of these payment transactions was around NOK 390. Online payments in 2020 accounted for around 19% of all payments using Norwegian payment cards. In terms of value, these payments accounted for just over 20% of the total value of payments using Norwegian payment cards.

3.1.3 Bank transfers

Households use bank transfers to pay bills and make payments to others. Businesses use them to pay bills and wages.

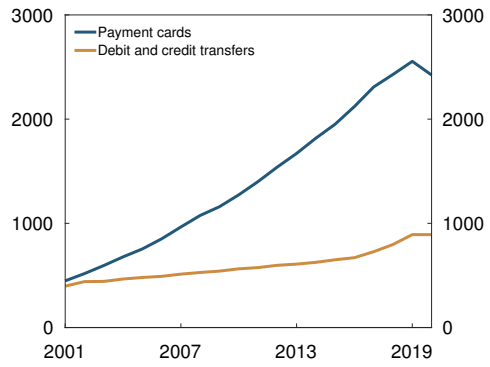
Bank transfers, also known as giro payments, involve the transfer of money from one account to another. There are two types: debit transfers initiated by the payee and credit transfers initiated by the payer. Payments that a user makes using online banking are an example of a credit transfer, whereas direct debits are an example of a debit transfer. If debit transfers are combined with an invoice that is sent electronically (e-invoicing), the

REAL-TIME SETTLEMENT OF PAYMENTS

In recent years, real-time payment solutions have been introduced in a number of countries, such as the UK (2008), Sweden (2012) and Denmark (2014). The solutions in these countries share two important characteristics. First, a payment reaches the payee a few seconds after it is made. Second, banks are not exposed to credit risk, even though payments are immediately available to customers.

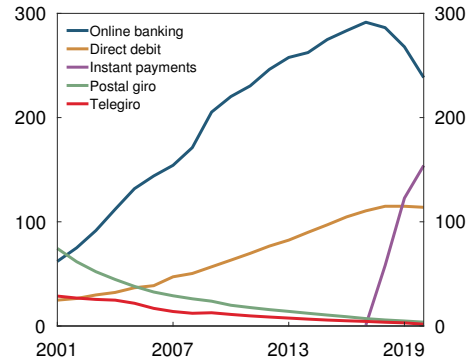
In Norway, the banking industry established the solution "Instant payments" in 2013, whereby payments were immediately available to recipients. However, banks were exposed to credit risk as interbank settlement did not take place in real time. Thus, the solution was not completely satisfactory. On the initiative of Norges Bank, an improved solution for settling real-time payments virtually without credit risk for banks was developed (see *Financial Infrastructure Report* 2020).

Chart 3.9 Use of payment instruments
In millions of transactions



Source: Norges Bank

Chart 3.10 Debit and credit transfers
Retail customers. In millions of transactions



Source: Norges Bank

payment process will be fully automatic for the customer. Both payee and payer must have an agreement with their bank for direct debits to take place.

Debit and credit transfers are used mainly for remote payments where payer and payee do not physically meet. Some payments at point of sale can also result in bank transfers. For example, a payment with a credit card will initially count as a card payment, but eventually the customer will be sent an invoice or bill that needs to be paid. This last payment is recorded as a debit or credit bank transfer.

The number of card payments was three times the number of bank transfers in 2020 (Chart 3.9). Nevertheless, the total value of bank transfers was still much higher than

REVISED PAYMENT SERVICES DIRECTIVE (PSD2) AND THE INTERCHANGE FEE REGULATION

The European Commission proposed a revised Payment Services Directive (PSD2) in 2013. The Directive entered into force in the EU in 2018 and in Norway on 1 April 2019. The primary purpose of PSD2, together with interbank fee and SEPA regulations, is to promote low-cost, modern and efficient payment services and to protect customers.

The Directive provides for two new types of payment service:

- Payment initiation services (PIS), whereby a PIS provider can initiate a payment order from a customer's payment account. A PIS provider can, for example, be a company that offers a payment application for smart phones as an independent service or as part of their overall range of services.

- Account information services (AIS), whereby an AIS provider can access customer account information. An AIS provider can, for example, be a mobile application that provides customers with an overview of their financial balances in different financial institutions. Such services can be bundled with payment applications, and marketing and advisory services.

the total value of card payments. While the average card transaction in 2020 was around NOK 370, the average online bank transfer was close to NOK 22 000.

The vast majority of bank transfers made by retail customers are now electronic (Chart 3.10). Paper-based and manual transfers, such as postal giro and telegiro payments, are rarely used these days. Standard online banking payments are by far the most common way for retail customers to pay their bills, but the use of more efficient methods, such as direct debits, is growing rapidly. These payments are made automatically when they fall due, provided that the customer's account has sufficient funds. The number of instant payments has also increased rapidly (see box: **Real-time settlement of payments**). Instant payments are received by the payee almost immediately after the payment has been initiated by the payer.

(For more information on retail payment services, see "Retail payment services 2020", *Norges Bank Papers* 1/2020, Norges Bank.)

3.2 Interbank systems

3.2.1 Norges Bank's settlement system (NBO)

Norges Bank is the ultimate settlement bank in the Norwegian payment system. All payments made in NOK are ultimately settled between banks in Norges Bank's settlement system (NBO). This includes ordinary payments by households and firms, large payments in the financial and foreign exchange markets, and payments involving the public sector. Average daily turnover in NBO in 2020 was around NOK 458bn.

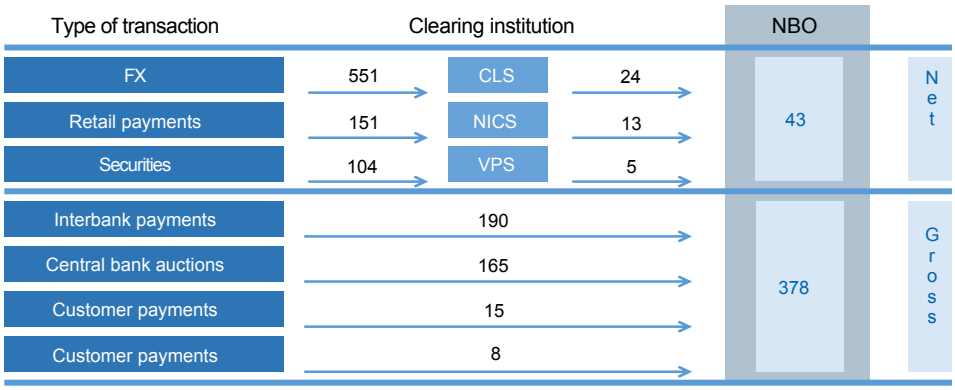
NBO is also used to implement Norges Bank's monetary policy. Read more about the implementation of monetary policy in Section 1.1 *Money markets* and in box: **Norges Bank's liquidity management and overnight lending rate** in Section 1.

A total of 129 banks have an account with NBO, including most Norwegian banks. These banks can participate directly or indirectly in the various settlements in NBO. Indirect (or tiered) participation means that a bank relies on another bank (a direct participant) to perform settlement in NBO on its behalf. Although all Norwegian banks have an account with NBO, few banks settle their transactions directly in NBO. These are primarily the largest Norwegian banks and the Norwegian branches of Scandinavian banking groups. The majority of Norwegian banks have only a few gross transactions and participate in net settlements through one of the big banks. Foreign banks without branches in Norway can hold accounts in Norges Bank, but choose to participate indirectly in the settlement in Norges Bank. In terms of value, transactions originating from foreign banks account for a substantial share of turnover in NBO.

NBO's turnover stems from the following settlements:

- Gross settlements (settlement of individual transactions in real time) account for more than 90% of turnover in NBO (Chart 3.11). These transactions include large financial market transactions, often related to banks' foreign exchange trading, liquidity management and payments on behalf of customers (Chart 3.12). The average size of these transactions was just over NOK 146m in 2020. All Norwegian banks with an account with NBO can participate directly in gross settlement, but only 10–15 banks do so.

Chart 3.11 Turnover in NBO
In billions of NOK. Daily average. 2020



Sources: Bits, Euronext VPS, CLS and Norges Bank

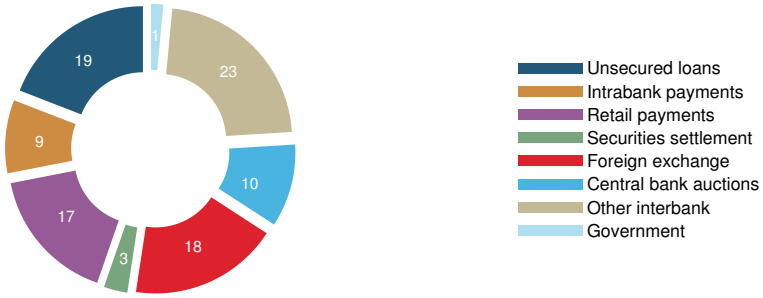
- NICS Net primarily settles ordinary retail payments but also some small-scale financial market transactions (below NOK 25m) (see Section 3.2.2 *The Norwegian Interbank Clearing System (NICS)*).

- Securities settlement is the settlement of securities transactions, including payments between banks related to securities transactions. The actual securities are settled through VPS (see Section 3.3 *Securities settlement (VPO)*). Participants in VPO that do not have an account with Norges Bank settle the cash leg of securities transactions through a bank (liquidity bank).

- Derivatives settlement. The participants in this settlement are central counterparties and a few large banks. Derivatives settlement comprises the settlement of payments relating to option premiums, fees and interest (see Section 3.4 *Central counterparties*).

Norges Bank requires banks to have sufficient funds to cover the positions they intend to settle in NBO. This can be in the form of deposits or use of the lending facility at Norges Bank. To gain access to the lending facility, banks must pledge securities registered in a central securities depository as collateral in favour of Norges Bank. Banks' available liquidity from the central bank's lending facility generally exceeds what they need to settle payments.

Chart 3.12 Gross settlement by transaction type
Percent. August 2015



Sources: Bits, CLS and Norges Bank

The Scandinavian Cash Pool has been developed by Norges Bank in collaboration with the Riksbank (Sweden's central bank) and Danmarks Nationalbank (Denmark's central bank) to facilitate liquidity management for banks that participate in settlements at some or all of the Scandinavian central banks. The Pool allows banks to use deposits in one central bank as collateral for loans from another.

3.2.2 The Norwegian Interbank Clearing System (NICS)

NICS is the banks' joint system for receiving and clearing payment transactions. Almost all payment transactions in Norway are sent to NICS for clearing before being sent to NBO for settlement. Small-value payments, such as card payments and bank transfers, are netted so that each bank has a single debit or credit position against other participant banks. The clearing is performed by NICS and then sent to NBO for settlement (net settlement) five times daily: at 5.30 am, 9.30 am, 11.30 am, 1.30 pm and 3.30 pm.

All banks participate in NICS directly. Banks can participate in the net settlement at Norges Bank either directly (tier 1 banks) or indirectly (tier 2 banks). Once clearing in NICS is complete, the tier 1 banks that serve as settlement banks for tier 2 banks settle these banks' positions at Norges Bank. These positions are then added to the settlement bank's own position so that the settlement bank has a single position in the net settlement. Once settlement in NBO is complete, the tier 2 bank's account with the settlement bank is debited or credited. At the beginning of 2021, 21 banks participated directly in net settlement in NBO and 98 banks indirectly. The largest private settlement bank is DNB ASA, which settles on behalf of 87 banks, while SpareBank 1 SMN is the settlement bank for 10 banks and Danske Bank for one bank.

CENTRAL BANK DIGITAL CURRENCIES

A number of central banks, including Norges Bank, are considering whether to issue a generally accepted central bank digital currency (CBDC) in the future. This form of money is a claim on the central bank in the official currency and would serve as a supplement to cash.

Technological advances have brought this issue to the fore. Falling cash usage and the possibility of major changes in the monetary and payment system have raised the question of whether new functions will be needed in order to ensure that payment systems remain efficient and robust and to maintain confidence in the monetary system.

A CBDC could be an appropriate measure to address weaknesses that could otherwise emerge. At the same time, the introduction of CBDCs could impact bank funding and financial stability. CBDCs can take different forms depending on purpose.

CBDCs raise complex issues. There is limited international experience to draw on. More analysis is needed to assess purpose, the type of solution that best serves the purpose and the benefit of CBDCs relative to financial and other costs. In spring 2021, Norges Bank decided to supplement the analyses with experimental testing of technical solutions for up to two years. No decision has been made to introduce a CBDC.[1]

1 See *Norges Bank Papers* 1/2018, *Norges Bank Papers* 2/2019 and *Norges Bank Memo* 1/2021 for a more detailed discussion of central bank digital currencies.

Most of the payments cleared through NICS are below NOK 25m. Large-value payments, or specially marked payments, are sent to NBO for gross settlement, either directly to Norges Bank or via NICS. NICS has introduced a real-time payment solution, where the payee's account is credited within seconds of payment initiation and before the payer's bank is debited. The payment is backed by central bank money, which eliminates inter-bank credit risk.

Norges Bank has awarded the licence to operate the Norwegian Interbank Clearing System (NICS) to the financial industry's infrastructure company Bits AS (Bits)[8], which is subject to supervision by Norges Bank. Bits has outsourced the technical operation of NICS.[9] Although the technical operation of NICS has been outsourced, Bits remains responsible for its operation.

3.2.3 Foreign exchange settlement risk and the CLS foreign exchange settlement system

Foreign exchange (FX) settlement involves the risk of counterparty default, often referred to as Herstatt risk after German bank of that name, which failed in 1974 (for more about Herstatt risk, see "Bank Failures in Mature Economies", *BCBS Working Papers No. 13*, April 2004, and box: **Herstatt risk**).

CLS was set up in 2002 to reduce FX settlement risk. Settlement in CLS is based on payment versus payment (PvP), which means that banks do not have to deliver on one part of a trade until they have received the other part. This means that settlement risk is substantially reduced and the transacting banks only have credit risk exposure to CLS. CLS currently settles FX trades in 18 different currencies. In addition to Norwegian kroner, CLS settles FX trades in US dollars, Canadian dollars, pounds sterling, euros, Swedish kronor, Danish kroner, Swiss francs, Australian dollars, New Zealand dollars, Singapore dollars, Hong Kong dollars, Japanese yen, Korean won, Mexican pesos, Israeli shekels, Hungarian forints and South African rand.

CLS Bank is located in New York and is supervised by the US central bank, the Federal Reserve. Norges Bank and the other central banks whose currencies are settled by CLS Bank are members of an oversight committee chaired by the Federal Reserve. CLS Bank is organised as a limited liability company owned by settlement members.

8 The responsibility for operating NICS was transferred from the NICS Operations Office to Bits AS in 2017.
9 At the turn of the year 2020/2021, operation of NICS was outsourced to Centurion Nets Norge Infrastruktur AS (CNNI), a Nets Group company. On 5 March 2021, CNNI was acquired by Mastercard.

HERSTATT RISK

One widely discussed incident that had significant consequences for the foreign exchange market was the failure of the German bank Bankhaus Herstatt in June 1974. This happened during the afternoon, local time, after the German settlement system had closed, but before the final settlement in the US. Many of the bank's customers, who wanted to convert German marks into US dollars, had already sent German marks to Herstatt and were expecting to receive their dollars later that day in New York. However, Herstatt's correspondent bank in New York suspended all outgoing payments on behalf of Herstatt once it became known that the bank was insolvent and had ceased operating. Some of these customers were left with considerable exposure to Herstatt, and some customers' claims were never met. Herstatt risk has come to be used widely as an alternative term for foreign exchange settlement risk.

Participation in CLS can be either direct (as a settlement member) or indirect (as a third party). Settlement members make all incoming and outgoing payments themselves, while third parties participate through a settlement member. DNB is the only Norwegian settlement member. Actual settlement in CLS is gross (payment versus payment) in private bank money (bank deposits, also known as inside money) in CLS Bank, but banks pay in a net amount calculated by CLS for each currency. Settlement members pay and receive funds through CLS' central bank account via their own accounts.

If a settlement member does not have an account with a central bank, payments are made via another bank with an account at that central bank, known as a correspondent bank. There are four correspondent banks for Norwegian kroner: DNB, Nordea, SEB and Danske Bank. These correspondent banks send and receive Norwegian kroner in NBO on behalf of their participant banks. CLS has a total of 65 settlement members. Funds in NOK are paid and received through CLS' Norges Bank account via the four correspondent banks and Handelsbanken (see the CLS website).

3.3 Securities settlement (VPO)

The securities settlement system (VPO) has a cash leg and a securities leg. Ownership of Norwegian financial instruments is registered electronically in accounts in the central securities depository (CSD) owned and operated by Euronext VPS, hereinafter referred to as VPS. VPS operates the only Norwegian central securities depository where important information about securities is registered, such as owners' names and whether the securities have been pledged as collateral. A securities trade is not completed (does not gain legal protection) until the change in ownership is registered in VPS. All financial instruments can be registered in a central securities depository.

The total market value of securities registered in VPS is currently around NOK 7 000bn. When a security is sold, the security itself is transferred from the vendor's account to the buyer's account at VPS, while the cash leg is settled at Norges Bank. VPO settlements take place three times a day (early morning, late morning, and afternoon). Gross daily turnover for securities settlements at VPS was around NOK 104bn in 2020, whereas the

TARGET2-SECURITIES (T2S)

The work to create a single market for financial services has been strengthened by the development of infrastructure for cross-border securities settlement (Target2-Securities (T2S)) under the auspices of the European Central Bank (ECB).

T2S is currently used by 24 central securities depositories (CSDs). Except for the Danish CSD, VP securities, all CSDs settle in euros. Norges Bank and VPS may join at a later date if there is sufficient interest among market participants and if Norges Bank can reach a satisfactory agreement with the ECB.

Under T2S, banks still have securities accounts with CSDs and cash accounts with central banks, but the accounts with central banks and CSDs participating in T2S are linked. Settlement in securities accounts and central bank accounts takes place on a transaction-by-transaction basis, with securities and cash being transferred simultaneously. If CSDs have accounts with each other, two banks will be able to settle securities trades with one another directly even if they are not members of the same CSD.

daily net settlement value at Norges Bank was around NOK 5.4bn. Like Oslo Børs, VPS is owned by the international group Euronext N.V., which also includes a number of other CSDs.[10]

Traditionally, each country has had its own solutions for trading and settlement of securities. In recent years, however, the EU has worked to promote further integration of European securities markets by standardising legislation in European countries by introducing the Central Securities Depository Regulation (CSDR). The CSDR was implemented in Norway on 1 January 2020 (see box on European legislation on securities and derivatives). The establishment of TARGET2 and TARGET2-Securities (T2S), the ECB/Eurosystem payment system for processing cross-border payments and securities transactions, also promotes European integration (see box: **TARGET2-Securities (T2S)**).

3.3.1 How are trades made?

Financial instruments are traded both on regulated trading venues (for example stock exchanges) and unregulated markets (see also box: **Turnover in securities: exchange-traded and OTC** in Section 1).

Before buying or selling equities on a regulated trading venue, an investor must be a customer of a securities firm (broker). The trade is initiated when the customer asks the broker to place an order in the venue's trading system, stating which securities are to be bought or sold together with the desired volume and price. The trading venue compares buy and sell orders, and trades are executed as soon as there are buy and sell orders that match in terms of price, volume and any other terms. A trade is normally settled two days after being made.

Investors in the bond market are normally large institutions, such as banks and insurers, and generally trade bilaterally outside a trading venue (OTC), agreeing between them the volume, price, settlement date and any other terms. The buyer and seller (or their brokers) send information on the trade to VPS, which matches the information from the two parties. As with equities, trades are normally settled two days after they take place.

3.3.2 How does securities settlement work?

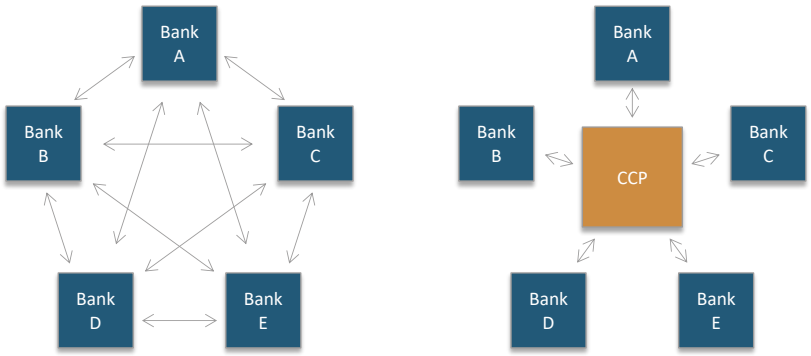
A total of 36 entities participate directly in the securities leg of VPO, including the securities departments of large Norwegian banks, branches of foreign banks, some Norwegian brokerages and central counterparties (CCPs), 20 of which also participate directly in the cash leg at Norges Bank. Participants at Norges Bank are banks and CCPs. Private investors and a number of banks participate in VPO indirectly through one of these direct participants.

Trading in fixed-income instruments and in equities is sent to VPS by the securities firms. VPS checks that the information on purchases and sales matches in terms of price, volume and other terms. If the trade is in equities, a CCP will normally become the counterparty in the securities settlement in VPS (see Section 3.4 *Central counterparties*).

VPO is a multilateral net settlement. VPS calculates a net position for each bank based on the agreed securities transactions. Norges Bank executes the cash leg of the settlement and VPS enters the securities transactions in the participants' securities accounts (the securities leg of the settlement). This solution ensures that securities only change owner after the buyer has paid and the seller has delivered (delivery versus payment). CCPs participate in securities settlement but generally have a net position close to zero, because they act as seller for the buyer and buyer for the seller.

10 Currently the Danish, Portuguese and Italian CSDs.

Chart 3.13 Central counterparty (CCP)



Once settlement between securities firms and banks is completed, investors (and other indirect participants in the settlement) are credited or debited. In the cash leg, this means that securities firms transfer money to the investors that have sold securities and debit the investors who have purchased securities. This can also be done prior to settlement. For Norwegian investors, Norwegian equities are registered on a VPS account in the name of the investor. Otherwise, equities may be registered in the investor's bank (nominee registration), where only the name of the nominee and not the name of the beneficial owner appears in VPS. There are currently about 1.87m VPS accounts.

3.4 Central counterparties

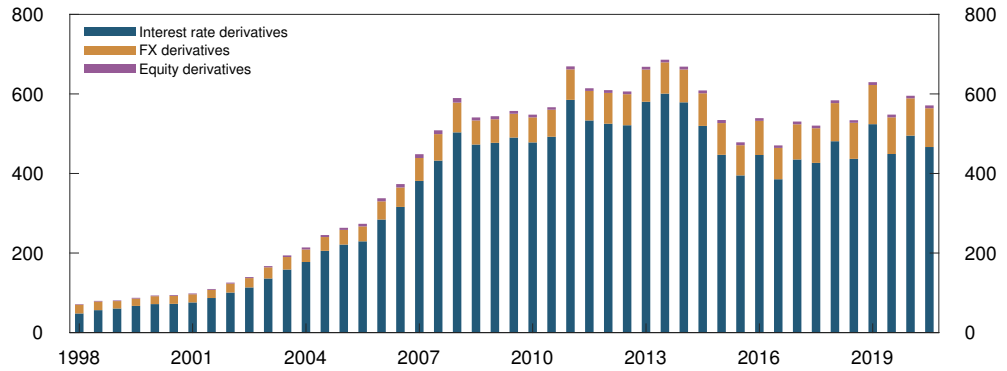
A central counterparty (CCP) enters into a transaction between buyer and seller and becomes the counterparty for both. The original contract is replaced with two new ones: one between the buyer and the CCP and one between the seller and the CCP. The parties to the transaction will not be exposed to each other, but to the CCP instead (Chart 3.13). The CCP guarantees completion of the transactions that are cleared through it (clearing) and is responsible for payment of any margin requirements. Margin requirements are either in the form of cash or securities and are intended to ensure that the CCP does not incur a loss in the event of counterparty default.

3.4.1 Use of central counterparties

The global financial crisis in 2008 revealed that margin requirements for bilateral trading in derivatives (OTC derivatives) were not adequate. In addition, the authorities were unaware of the scale and type of exposures between market participants. Drawing on the experience gained during the financial crisis, the G20 leaders agreed to strengthen the regulation of derivatives markets. Importantly, it was agreed that OTC derivatives should to a greater extent be settled via CCPs. This has been followed up in the US by means of the Dodd-Frank Act and in Europe through the European Market Infrastructure Regulation (EMIR) (see box: **European legislation on securities and derivatives**).

EMIR was implemented in Norway on 1 July 2017. Under EMIR, standard interest rate derivatives, which are by far the most widely traded derivatives, will be subject to clearing (Chart 3.14). For example, banks use interest rate derivatives in connection with foreign currency borrowing in bond markets (see box: **Norwegian Banks' and mortgage companies' bond funding abroad** in Section 1). Today, Norwegian banks settle interest rate derivatives bilaterally and through SwapClear, which is part of the UK central coun-

Chart 3.14 Global OTC derivatives market
Notional amounts outstanding. In trillions of USD



Source: BIS

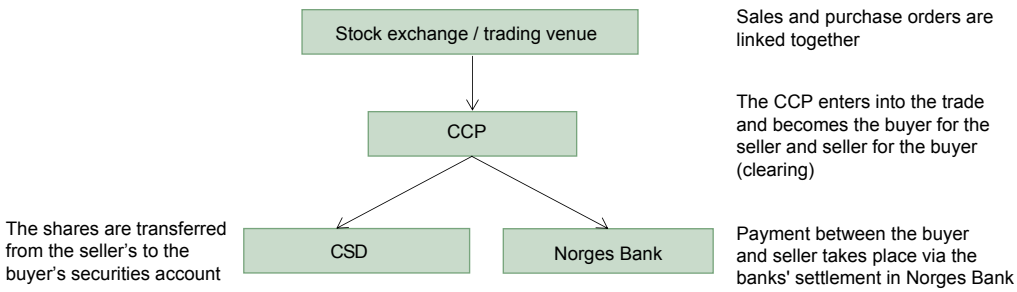
terparty LCH.Clearnet . DNB Bank ASA participates directly in SwapClear, as do a number of other Nordic banks.

Clearing through a CCP has also increased because many trading venues have made it a requirement. Clearing of equities has been compulsory on Oslo Børs since 2010. The clearing obligation on Oslo Børs came about primarily as a result of foreign participants' interest in anonymous trading. Norwegian equities are also traded on other trading venues (Chart 3.15). Some CCPs are active on one or more trading venues. Since this means that they have positions that need to be settled in the Norwegian securities settlement system, the CCPs take part in the cash leg at Norges Bank, either directly or through another bank.

3.4.2 Central counterparties and financial stability

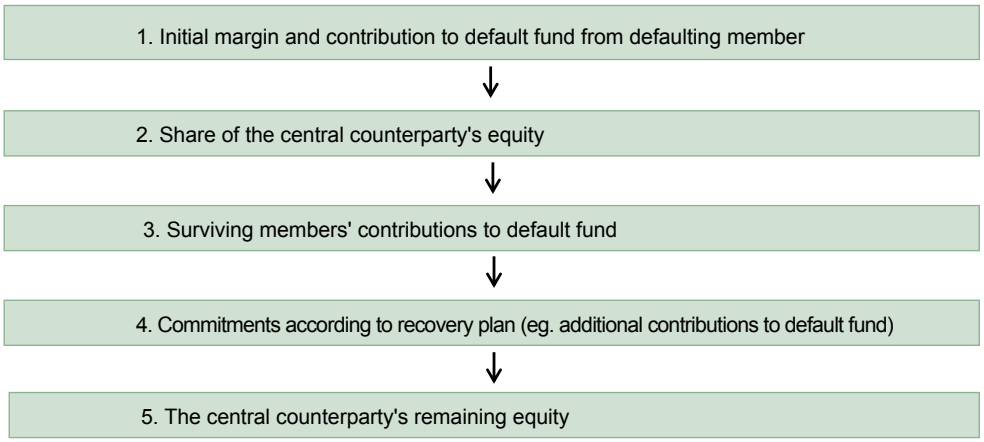
In principle, a CCP has a balanced position (a "matched book"). Any fluctuations in the prices of the equities or derivatives that it clears will therefore not involve a risk of losses for the CCP. It is still, however, exposed to a conditional market risk. If either party fails to fulfil its obligations under the trade, the CCP is obliged to honour the terms of the original trade with the party that has not defaulted. In this situation, the CCP's position will no longer be balanced. The CCP will then close out the position, ie it will enter into a new contract to buy or sell an opposite position. To limit risk, the CCP will try to close out the position quickly once a participant has defaulted.

Chart 3.15 Trading, clearing and settlement of equities in NOK



Source: Norges Bank

Chart 3.16 Chart 3.16 Illustration of the central counterparty default waterfall



To manage the risk they take on, CCPs require CCP members to deposit margins and pay contributions to a default fund. If a member defaults, losses must initially be covered by the margin and default fund contribution paid in by the defaulting member. If the losses exceed the margin and the default fund contribution, the CCP's own equity is used. Any losses beyond that must be covered by other participants' default fund contributions (Chart 3.16).

Most direct participants in a CCP are large banks. If a CCP's losses are so large that it has to exhaust the default fund to close out the position, the CCP may require members (including Norwegian banks) to pay in an additional contribution to the default fund. The size of these contributions depends on the contracts the CCPs have with members.

3.4.3 Central counterparties and systemic risk

CCPs should have clear and pre-defined procedures for the management of a clearing member default. With clear procedures, margin requirements and required default fund contributions, problems are less likely to arise compared with bilateral settlement. Since trading venues introduced the obligation to use a CCP, market participants' exposures have been concentrated in a small number of CCPs. This means that the consequences could be considerable if a CCP's risk management procedures are inadequate.

CCPs often operate in more than one country. To ensure that CCPs take sufficient account of the risks they face, the authorities have introduced close monitoring and extensive cross-border collaboration. The Norwegian authorities participate in the groups (colleges) responsible for the supervision and oversight of three CCPs active in the Norwegian securities market.

EUROPEAN LEGISLATION ON SECURITIES AND DERIVATIVES

The EU is working to create a single securities market in the EU with more efficient competition and enhanced transparency in securities and derivatives trading. To achieve this, the EU has introduced a number of directives and regulations in recent years on trading and settlement of financial instruments. Important examples include the Markets in Financial Instruments Directives (MiFID I and II), the European Market Infrastructure Regulation (EMIR) and the Central Securities Depositories Regulation (CSDR).

- MiFID I regulates what happens before a trade is made and aims to improve protection of investors. For example, there are restrictions on the information that can be provided to customers and on the types of product that can be offered to different kinds of customer. The Directive also requires the best bid and offer prices to be quoted ahead of the trade, with subsequent publication of the price, volume and timing of a trade. MiFID I was introduced in Norway in 2007.

- MiFID II is an extension of MiFID I in response to a number of trends in the market. For example, MIFID II introduces requirements to limit the risk of instability and market manipulation as a result of high-frequency trading (HFT) using computer programs. Trading models based on mathematical algorithms must be designed in such a way that they are robust to different market conditions. Participants must also supply the supervisory authorities with detailed information on the algorithms they use. MiFID II was introduced in Norway through the regulation of 1 January 2018.

- EMIR requires suitable OTC derivatives to be cleared through a central counterparty and all derivatives trades to be reported to a trade repository. The requirement for clearing through a central counterparty applies to financial firms that trade in derivatives outside regulated trading venues. Non-financial firms must use central counterparties for OTC derivative transactions above a certain volume. EMIR was introduced in Norway on 1 July 2017.

- CSDR standardises national legislation on central securities depositories (CSDs) and aims to promote competition between CSDs in different countries. The Regulation provides for links between CSDs, allowing investors and issuers to choose which depository a security should be registered in, where this does not contravene national legislation. Harmonisation of the rules in different countries is essential for efficient cross-border settlements on the T2S platform. A new Central Securities Depository Act, which implements CSDR in Norway, entered into force on 1 January 2020 and supersedes the previous Securities Register Act.[1]

A common feature of these regulations is that providers of financial infrastructure services (central counterparties, central securities depositories, trade repositories and investment service providers) authorised in one EU member state are entitled to operate throughout the EU/EEA (known as the "single passport"). Non-EU service providers can apply to the European Securities and Markets Authority (ESMA) for third-country recognition. Providers that are authorised by the EU (either directly or on a third-country basis) are subject to pan-European supervision and oversight, where for example ESMA participates.

1 The new Central Securities Depository Act (Norwegian only) [https://lovdata.no/dokument/NL/lov/2019-03-15-6]

Appendix 1: Regulation of financial markets and trading venues

In financial markets, savings are channelled to investments, and risk is allocated according to investors' willingness to bear risk. Moreover, many markets generate prices that are communicated to market participants and thus function as important carriers of information. These tasks cannot be properly performed unless participants have confidence in the functioning of the financial market as a whole. A securities trade requires confidence that the right to own the security is not in dispute, that everyone in the market has equal information and that the parties are honest in their actions. If participants do not have that confidence, securities trading will be associated with risk beyond the risk of the individual security. This will make it more expensive for businesses to raise capital in securities markets.

Various kinds of market failure can give rise to a loss of confidence. For example, information asymmetry can provide an opportunity for unlawful insider trading and price manipulation. Protecting investors is the responsibility of the authorities, and there are various measures in place to reduce the risk associated with financial market activities, including regulation and supervision. The Securities Trading Act regulates actual trading in financial instruments and sets requirements for participants. The Act also regulates the intermediary function and lays down requirements for security and impartiality at this stage of a trade. The Act relating to regulated markets (Stock Exchange Act) and the Central Securities Depository Act (Norwegian only) regulates the securities market infrastructure. In markets where consumers (non-professional investors) participate, consumer information and protection are key objectives of the legislation.

To ensure that all investors in Norwegian securities traded in regulated markets are provided, as far as possible, with the same information, the Securities Trading Act contains the following provisions:

- Requirements with regard to ongoing and periodic information.
- A requirement for close associates of a company who therefore have particular knowledge of its financial position (primary insiders) to give notification of the purchase or sale of shares.
- A disclosure requirement for large shareholders when their holdings exceed or fall below specified thresholds in either direction. For holdings of up to 25%, there is a disclosure requirement for every 5 percentage points.
- A requirement for extensive publicly available information in connection with an initial public offering or offers to subscribe for shares or other securities in a regulated market.

Finanstilsynet monitors compliance with the legislation and the information requirements. (See Finanstilsynet's website for information about prospectuses (Norwegian only)).

Norway participates in the EU single market in financial services under the EEA Agreement. Norwegian legislation is therefore harmonised with EU legislation. The EU Markets in Financial Instruments Directive (MiFID) lays down requirements for the organisation of investment firms and their conduct of business, authorisation requirements for regulated markets, reporting obligations to prevent market manipulation, notification obligations relating to transactions in shares and provisions on admission of financial instruments to quotation on regulated markets. The Directive has been implemented in Norway through the Securities Trading Act. MiFID I was introduced in Norway in 2007 and MiFID II in January 2018.

Over the past decades, various forms of derivatives (see box: **Derivatives** in Section 1) have become an increasingly important element in financial markets. Derivatives trading has been largely unregulated or lightly regulated. The financial crisis showed that when market participants are unaware of the risk associated with given financial instruments and moreover have no knowledge of who owns which instruments, the result can be a loss of mutual trust. In the wake of the financial crisis, this has led to increased regulation of derivatives markets, including mandatory clearing for certain standard interest rate derivatives. In the EU, over-the-counter (OTC) derivatives, central counterparties and transaction registers are regulated by the European Market Infrastructure Regulation (EMIR). EMIR was introduced in Norway on 1 July 2017.

The CSDR (Central Securities Depository Regulation) standardises the legislation relating to central securities depositories (CSDs) and is intended to promote competition between CSDs in different countries (see Norges Bank's *Financial Infrastructure Report* 2020). This regulation was implemented in Norwegian law on 1 January 2020.

FX and money markets have been viewed as markets that function well with very little specific government regulation. For self-regulation to function, efficient markets and professional participants are essential. In these markets, trust is largely assured by participants' self-regulation and by the fact that participants (ie banks and other financial institutions) are regulated. However, as there have been a number of examples of misuse of information and attempts to manipulate key prices in several unregulated markets in recent years, a number of initiatives have been taken to regulate previously unregulated activities and market participants.

Appendix 2: Capital and liquidity regulation

Banking crises can impose substantial costs on society. The authorities therefore set capital, liquidity and funding requirements for banks so that banks can weather periods of higher losses and funding shortages without recourse to taxpayer funds.

Banks must meet a number of different capital requirements simultaneously. The banking regulations contain three different capital requirement categories:

- Requirements for risk-weighted capital ratios are intended to ensure that banks' capital is sufficient relative to their risk of losses.
- Leverage ratio requirements are intended to ensure that banks fund lending and other assets with a sufficient share of Tier 1 capital, independent of banks' risk of losses and calculation approach.
- Minimum required own funds and eligible liabilities (MREL) are intended to ensure efficient bank recovery and resolution without recourse to taxpayer funds.

The banking regulations also contain two different liquidity requirements for banks, enabling them to weather periods of deposit run-offs and funding shortfalls:

- The Liquidity Coverage Ratio (LCR) requirement is intended to ensure that banks have a sufficient stock of liquid assets to weather a 30-day period without access to new funding and financial market stress.
- The Net Stable Funding Ratio (NSFR) is intended to ensure that banks fund illiquid assets with long-term funding.

International cooperation on common banking regulation

Problems in the banking sector can be transmitted across borders. Authorities from a number of jurisdictions and international bodies have therefore worked over several decades towards common banking regulation, both to increase the resilience of the global banking system and to establish a level playing field for banks.

The Basel Committee on Banking Supervision (BCBS) plays a key role in the work to set international standards for banking regulation. The Basel Committee, which is an international body for central banks and supervisory authorities from the largest advanced economies, held its first meeting in 1975. The Committee has issued detailed proposals for banking regulation in three rounds: the Basel I, II and III frameworks. The Committee has no supranational authority, but members have committed to implementing the frameworks.

Since the global financial crisis in 2008, the Financial Stability Board (FSB) and the European Banking Authority (EBA) have also played key roles in the international cooperation on banking regulation. The FSB, which was established in 2009, is a collaborative body that monitors and provides policy recommendations on the framework for the global

financial system. The FSB comprises the G20 countries and the most important organisations and committees in this area. The EBA, which was established by the EU in 2011, draws up guidelines for banks that ensure consistent banking regulation at the European level.

In Europe, the European Commission issues draft banking regulations. The EBA assists the European Commission in its work and proposals are generally based on the Basel Committee's recommendations. The European Council and the European Parliament then adopt the regulation based on the proposal from the Commission.

Banking regulations in Norway are subject to EU rules. Rules adopted by the EU with EEA relevance are incorporated into the EEA Agreement and transposed into Norwegian law. EU rules are laid down as either directives or regulations. Regulations are to be incorporated into Norwegian legislation verbatim, while EU directives are often formulated more generally, which gives Norway greater flexibility in their implementation.

The evolution of banking regulation

In 1988, the first global standard for bank capital regulation appeared when the Basel Committee published the Basel I framework. Basel I was implemented in over 100 jurisdictions and entered into force in Norway in 1991.

The Basel I framework was eventually criticised for insufficiently addressing differences in risk. Under Basel I, capital requirements were calculated using fixed and standardised risk weights based on a relatively rough categorisation of assets' assumed risk. In some instances, banks with high risk could be subject to the same capital requirements as banks with lower risk. Large international banks that had used their own risk management models argued that their internal models should be used to calculate capital requirements as they provided a more accurate picture of actual risk than the Basel I rules.

In 1999, the Basel Committee proposed a new capital framework for banks, and in 2004, the Committee published an updated proposal, referred to as Basel II. Basel II was introduced in Norway in 2007. One of the intentions of Basel II was to improve the alignment between capital requirements, the risk associated with banks' assets and banks' risk management. Basel II introduced three pillars for capital regulation. Pillar 1 sets minimum requirements and buffer requirements for all banks.[1] Pillar 2 comprises additional individual requirements based on the supervisory authority's risk assessment of individual banks. Pillar 3 consists of requirements regarding the disclosure of information aimed at strengthening market discipline.

The financial crisis in 2008 revealed a number of weaknesses in Basel II, including a need for requirements to improve the resilience of banks to losses and funding shortfalls and to better enable banks' to support economic growth. In 2010, the Basel Committee therefore presented a detailed proposal for a new capital and liquidity framework, Basel III. Basel III contained proposals for liquidity coverage and stable funding requirements, capital buffer requirements and a leverage ratio requirement.

The financial crisis also showed the importance of bank recovery and resolution without recourse to taxpayer funds and without negative effects on financial stability. In 2011, the FSB therefore proposed new principles for bank recovery and resolution. The principles formed the basis for MREL, the EU minimum requirement for banks' own funds and eligible liabilities that can quickly be written down or converted to new equity (bail-in tool).

1 Buffer requirements were included in Pillar 1 in 2010 when the Basel Committee presented Basel III.

Risk-weighted capital requirements for Norwegian banks

Banks and other financial institutions must meet risk-weighted capital adequacy requirements. The aim of the risk-weighted capital requirements is to ensure that banks have sufficient capital relative to the risk of losses. The risk-weighted requirements need to correspond with loss risk, so that banks with risky exposures must hold more capital than banks with safer assets.

Banks' risk-weighted capital ratios are calculated as banks' capital as a percentage of risk-weighted assets.

$$\text{Capital adequacy ratio} = \frac{\text{Capital}}{\text{Risk-weighted assets}}$$

The numerator in the capital adequacy ratio, ie capital, may comprise different types of capital. The authorities set capital adequacy requirements measured by Common Equity Tier 1 (CET1) capital, Tier 1 capital and regulatory capital, where:

- Common Equity Tier 1 (CET1) capital = Equity capital – regulatory deductions[2]
- Tier 1 capital = CET1 capital + hybrid capital[3] (additional Tier 1 capital, AT1)
- Regulatory capital = Tier 1 capital + subordinated debt capital[4] (Tier 2)

Banks are subject to a minimum CET1 capital requirement of 4.5%, a Tier 1 requirement of 6% and a total minimum capital requirement of 8%. Even if all the requirements should be met, it is most common to calculate and report capital adequacy using CET1 capital. Assets that cannot be used to cover losses are subtracted from equity capital prior to the calculation of capital adequacy (regulatory deductions). If a financial institution operates at a loss, the equity capital covers initial losses, followed by hybrid capital until any subordinated debt capital begins covering losses.

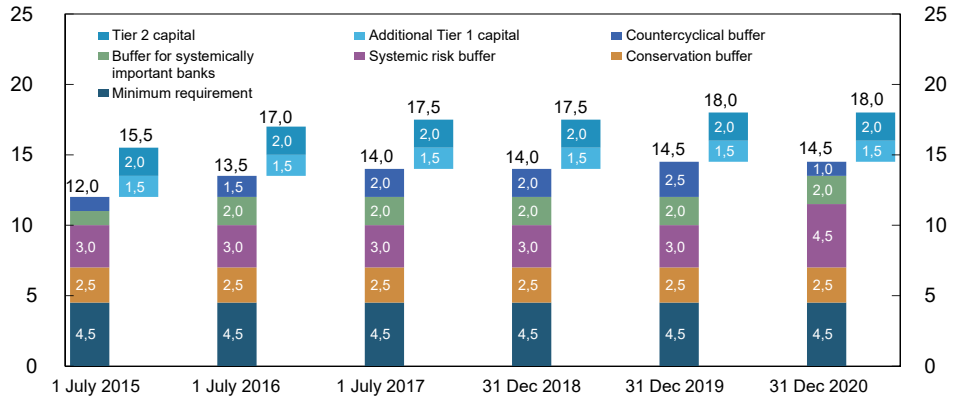
The denominator in the ratio, ie risk weighted assets, is calculated by weighting exposures with appurtenant risk weights:

- Risk weighted assets (RWA) = $\sum_{\forall i} \text{Exposures}_i * \text{Risk weight}_i$

The higher the risk of losses on an exposure, the higher the risk weight should be and the more capital the bank must hold to cover that exposure. Residential mortgage loans are for example normally included with a lower weight than corporate exposures, which are riskier. Basel II allowed banks to calculate risk weights using an internal ratings-based approach subject to approval by the authorities (IRB). The IRB approach is based on models containing historical data for defaults and losses on various types of exposures. Banks that have not applied to Finanstilsynet for approval to use the IRB approach must use risk weights set by the authorities (the standardised approach).

2 Including assets that will not necessarily be of value in a loss situation, such as goodwill, deferred tax assets and other intangible assets.
3 Hybrid capital is a combination of liabilities and equity. Hybrid capital pays a coupon but can be written down or converted into equity. In addition, banks can choose to not pay interest on hybrid capital. Examples of hybrid capital are preferred capital securities and contingent convertible securities (CoCos).
4 Subordinated debt has many of the same characteristics as hybrid capital, but the restrictions on, for example, maturity are not as stringent and subordinated debt covers losses after hybrid capital.

Chart 1 Phase-in of Pillar 1 capital requirements in Norway
Percent of risk-weighted assets



Source: Ministry of Finance

In addition to capital adequacy requirements, banks also face a number of buffer requirements. These are also referred to as "soft" requirements because they allow for some flexibility, although they must also consist of CET1 capital (Chart 1).

- The capital conservation buffer remains fixed at 2.5%. It is intended to cover losses resulting from cyclical systemic risk and ensure that capital adequacy does not fall below the minimum requirement in severe downturns.

- The systemic risk buffer is intended to cover losses resulting from long-term structural systemic risk, such as when banks are closely interconnected and have poorly diversified portfolios. The size of the buffer is to be assessed at least every other year.

- The buffer for systemically important financial institutions applies only to institutions designated as globally or domestically systemically important. The reason for this buffer requirement is that problems in systemically important banks can inflict more severe consequences on society than similar problems in other banks. No Norwegian financial institutions have been designated as globally systemically important, but Finanstilsynet annually advises the Ministry of Finance as to which financial institutions in Norway should be regarded as domestically systemically important. Financial institutions with total assets of at least 10% of mainland GDP and/or at least 5% market share of the lending market in Norway should be, as a rule, designated as systemically important and subject to an additional 1% buffer requirement. Financial institutions are subject to a 2% buffer requirement if their total assets and/or exposures amount to at least twice that of the threshold values. DNB and Kommunalbanken AS are designated as domestically systemically important and are subject to buffer rates of 2% and 1%, respectively. On 1 June 2021, the Ministry of Finance notified relevant EU/EEA authorities that Nordea Eiendomskreditt AS is also considered systemically important and should be subject to a 1% systemic importance buffer rate from end-June 2022.

- The countercyclical capital buffer aims to ensure that banks build capital during upturns so that they have more to draw on during a downturn. Banks should build and hold a countercyclical capital buffer when financial imbalances are building up or have built up. The buffer rate can be reduced in the event of an economic downturn and large bank losses. Norges Bank prepares a decision basis and provides advice to the Ministry of Finance regarding the level of the countercyclical capital buffer four times a year. (See "A framework for advice on the countercyclical capital buffer," *Norges Bank*

Papers 4/2019, Norges Bank, for more information about the basis of Norges Bank's advice.)

The requirements mentioned above are referred to as Pillar 1 requirements. In addition, there are Pillar 2 CET1 capital requirements, intended to cover risks that are not, or are only partly, covered by Pillar 1 requirements. Pillar 2 requirements are individual and depend on Finanstilsynet's assessments of the risks of the bank in question. Pillar 2 requirements consist of a formal requirement set as an individual decision and a capital margin requirement (Pillar 2 guidance), of which Finanstilsynet notifies the bank. The capital margin requirement is not a formal requirement and is not made public by Finanstilsynet.

Banks that do not satisfy the buffer requirements are automatically restricted in their ability to make payouts, such as employee bonuses, dividends, interest on hybrid capital and share buybacks. The automatic restrictions are calculated based on the size of the banks' unfulfilled share of the overall buffer requirement. When buffer requirements are breached, banks must also provide Finanstilsynet with a recapitalisation plan within five business days. The capital plan should also include a timetable for when the bank will meet the buffer requirements. If a bank is on the verge of breaching the minimum requirement, specific recovery and resolution rules will apply (see Section 2.3.8 *Bank recovery and resolution*).

Leverage ratio requirements for Norwegian banks

Risk-weighted capital requirements will not always ensure that banks' capital is sufficient relative to their risk of losses. The calculation of risk-weighted capital requirements is largely based on historical loss and default data. Since actual risk cannot be observed directly in historical data, risk-weighted capital requirements will not capture all changes in risk. If banks underestimate their risk and risk weights become too low, the risk-weighted capital ratio will give the impression that banks' ability to absorb losses is better than it actually is.

Prior to the financial crisis, banks' risk weights declined, which enabled the banks to meet risk-weighted capital adequacy requirements even though their equity ratios fell. The authorities therefore introduced a leverage ratio requirement to ensure that banks finance their assets with a sufficient share of equity capital, regardless of the assets' estimated risk. The leverage ratio requirement thus functions as an absolute limit for how much a bank can grow with a given stock of capital. The leverage ratio is calculated by dividing Tier 1 capital by a non-risk-weighted exposure measure, which primarily corresponds with banks' assets (exposures), both recognised and off-balance sheet[5].

$$\text{Leverage ratio} = \frac{\text{Tier 1 capital}}{\text{Exposure measure}}$$

The leverage ratio requirement is intended to function as a backstop and is not intended to be binding for a majority of banks. The current leverage ratio requirement is 3%. Systemically important Norwegian banks are also subject to an additional leverage buffer of 3%, whereas for other Norwegian banks, this requirement is 2%. For Norwegian banks overall, the leverage ratio was 8.1% at the end of 2020.

5 Off-balance sheet exposures also include derivatives and unutilised credit lines.

Minimum requirement for own funds and eligible liabilities (MREL)
The financial crisis also demonstrated the importance of bank recovery and resolution without recourse to taxpayer funds and without negative effects on financial stability. The authorities therefore introduced a new minimum requirement for banks' own funds and eligible liabilities that can be written down quickly and converted to new equity (bail-in tool), called MREL in Europe. The purpose of MREL is to ensure that banks and the authorities are able to forestall or resolve crises efficiently and in a timely manner, without the taxpayers having to bear the losses. Timely intervention is intended to ensure that the recovery of a systemically important bank can proceed without operational disruption.

Banks' shareholders and creditors bear the losses from a bail-in. An important principle is therefore that no creditor or shareholder is left worse off from bank recovery or resolution than they would have been from an insolvency. This is referred to as the no creditor worse off (NCWO) principle.

The current full MREL amount is the sum of requirements for loss-absorption and recapitalisation amounts:

- The loss absorption amount applies to all banks and is intended to cover the losses of shareholders and creditors so that taxpayers are not forced to bear the losses. The loss absorption requirement is the larger of the Tier 1 leverage ratio requirement and total capital adequacy requirements (minimum requirement, Pillar 2 requirement and the buffer requirements).

- The recapitalisation amount is intended to ensure that important banks with large losses are able to continue operations by swiftly converting liabilities to new equity. The requirement for the size of the recapitalisation amount is the same as the loss absorption requirement less the size of the countercyclical capital buffer.

At the end of 2020, Finanstilsynet decided that the 14 most important Norwegian banks were to be subject to MREL. MREL may be met with both regulatory capital and other liabilities that are subordinate to ordinary senior liabilities. MREL has therefore created a new debt category, referred to as non-preferred senior liabilities, which bears losses before ordinary senior liabilities and is thus eligible for MREL. Up until 1 January 2024, ordinary senior liabilities issued before 1 January 2020 can also be used, as long as they also meet maturity requirements.

At the end of 2020, loss absorption and recapitalisation amounts, calculated using CET1 requirements (risk-based MREL), were higher for Norwegian banks than when the amounts were calculated using Tier 1 leverage ratio requirements (leverage-based MREL). Since the countercyclical capital buffer is included in the loss absorption amount for risk-based MREL, Norwegian banks' MREL falls with reductions in the countercyclical capital buffer and vice versa. This does not apply if the leverage-based MREL is binding.

A new Bank Recovery and Resolution Directive (BRRD 2) will likely be introduced in Norway in the course of 2021. The BRRD 2 retains the calculation of MREL as the sum of loss absorption and recapitalisation amounts, but changes the method for calculating these amounts.

Under BRRD 2, MREL is to be calculated according to a risk-weighted method (risk-based MREL) and a leverage based method (leverage-based MREL), both of which are to be met at all times. Leverage-based MREL is calculated as twice the leverage ratio requirement,

while risk-based MREL is calculated as twice the total minimum requirement under Pillar 1 and 2 plus a capital conservation buffer, systemic risk buffer and the buffer for systemically important banks. Risk-based MREL becomes lower under BRRD 2 than under current rules because the countercyclical capital buffer is not included and the other buffer requirements are only included once. However, the risk-based MREL requirement cannot be met with capital that is used to fulfil the buffer requirements. The same does not apply for the leverage-based requirement.

BRRD 2 also introduces absolute minimum requirements. MREL must be at least 13.5% of risk-weighted assets and at least 5% of leverage exposure (LE) amounts. In addition, BRRD 2 introduces rules on the share of MREL that must be subordinate to senior liabilities. The priority ranking requirement must normally be at least 8% of a bank's overall balance sheet, at least 5% of LE amounts and at least 13.5% plus all buffer requirements for risk weighted assets. However, for banks classified as top-tier and "fished", the resolution authority can calculate the priority ranking requirement as twice the total minimum requirement under Pillar 1 and 2 plus all buffer requirements (prudential formula). The prudential formula can be met using regulatory capital, including capital used to meet the buffer requirements and liabilities that are subordinate to ordinary senior liabilities.

Bank liquidity and funding requirements

The financial crisis in 2008 demonstrated that banks' liquidity buffers were insufficient and that short-term funding was excessive. During the crisis, a number of banks experienced difficulty meeting commitments, owing to deposit run-offs, financial market stress and a complete dry-up of wholesale funding. Banks' adaptation was part of the reason why central banks had to provide banks with extraordinary liquidity and intervene in the markets. To strengthen the resilience of banks in such situations, the Basel Committee recommended Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) requirements.

Liquidity Coverage Ratio

The Liquidity Coverage Ratio (LCR) is intended to make institutions less dependent on short-term funding and liquidity from central banks. Under the LCR, banks' liquidity portfolios must be sufficient to survive a period of 30 days with deposit run-offs and financial market stress, without access to new funding. The LCR must consist of high-quality liquid assets (HQLA). The LCR is calculated by dividing HQLA by total net cash outflows.

$$\text{LCR} = \frac{\text{Stock of HQLA}}{\text{Total net cash outflows}} \geq 100\ \%$$

Total net cash outflows are calculated as expected cash outflows less expected cash inflows in the stress period. Calculations are to be based on assumptions regarding the inability to roll over wholesale funding and deposit run-offs.

The value of the stock of HQLA is to be calculated after haircuts for assumed price declines in the stress period. Government securities are normally the most liquid securities and are thus well-suited for liquidity buffers. At the same time, the EU decided in 2014 that covered bonds would be given higher priority in liquidity buffers than recommended by the Basel Committee.

In Norway, banks and mortgage companies must maintain a minimum LCR of 100% for all currencies in total and for each significant foreign currency. In addition, banks with

EUR and/or USD as significant currencies must maintain a minimum LCR in NOK of 50%. This means that they may use HQLA in foreign currency to cover the remaining 50% of the NOK requirement. At the end of 2020, the average LCR for Norwegian banks was 160%.

Net Stable Funding Ratio requirement

The Net Stable Funding Ratio (NSFR) requirement is intended to limit banks' refinancing risk. The NSFR requires banks to fund illiquid assets with long-term funding. The NSFR is calculated by dividing the available amount of stable funding by the required amount of stable funding.

$$\text{NFSR} = \frac{\text{Available amount of stable funding}}{\text{Required amount of stable funding}} \geq 100\ \%$$

The available amount of stable funding is calculated by weighting funding according to available stable funding (ASF) factors. Funding that is considered most stable includes equity capital, bonds with multi-year maturities and deposits from the retail market and small businesses.

The required amount of stable funding is calculated by weighting assets and off-balance sheet exposures assumed to require stable funding with defined required stable funding (RSF) factors. Illiquid assets with long residual maturities are subject to the highest long-term funding requirements. Loans are the most common assets that are subject to long-term funding requirements.

The NSFR will be introduced in the EU in June 2021 as part of the banking package and likely in Norway in the course of the year. Banks have already reported NSFRs for several years. At the end of 2020, the average NSFR for Norwegian banks was 120%, and all Norwegian banks satisfied the requirement.

Appendix 3: Important financial system legislation

Act	Short title	Activity regulated	Description
Act of 10 April 2015 No 17 relating to financial institutions and financial groups	Financial Institutions Act	Regulates financial institutions (bank, mortgage credit institution, finance companies, insurance undertaking, pension undertaking, financial holding companies, payment institutions and e-money institutions) and account information service providers	The Act lays down licensing requirements for establishing and carrying out business as a financial institution, including organisational, operational, capital and solvency requirements. The Act also lays down rules relating to deposit guarantees and dealing with solvency problems at banks etc.
Act of 25 June 1999 No 46 relating to financial contracts and financial assignments	Financial Contracts Act	Contracts and assignments for financial services. The Act does not apply to two parties that are both financial institutions or similar institutions and are acting in this capacity.	The Act primarily lays down private law rules relating to contracts between consumers and financial institutions and similar institutions, including deposit and payment service contracts, loan contracts, debt guarantees and brokerage and advising engagements. The Act also contains general provisions on making payments.
Act of 10 June 2005 No 44 relating to insurance activity	Act on Insurance Activity	Insurance undertakings, pension undertakings, banks and securities fund management companies	The Act lays down special requirements for the organisation of insurance undertakings and pension funds, business rules for individual and group life insurance, local government pension schemes and rules for the transfer of pension schemes. The Act also contains rules pertaining to non-life insurance.
Act of 10 June 2005 No 41 relating to insurance mediation	Act on Insurance Mediation	Insurance brokerage activites and insurance agent activity	The Act lays down licensing and qualification requirements for conducting business as a insurance broker and insurance agent as well as requirements for insurance schemes and general business requirements.
Act of 16 June 1989 No 69 relating to insurance contracts	Insurance Contracts Act	Contracts for non-life insurance and insurance of individuals	The Act primarily lays down private law rules for contracts for non-life insurance and insurance of individuals, including disclosure requirements and liability. The provisions are mandatory in principle, but the rules pertaining to non-life insurance may be derogated from for larger commercial enterprises.
Act of 24 November 2000 No 81 relating to occupational defined contribution pensions	Act on Defined Contribution Pensions	Entities that have set up an defined contribution pension scheme	The Act lays down requirements for the contents and benefits of defined contribution pensions schemes.
Act of 16 June 1989 No 70 relating to natural disaster insurance	Act on Natural Disaster Insurance	Insurance companies (non-life insurance)	The Act regulates insurance of property against natural disasters. Property in Norway insured against fire damage is, under the Act, also insured against natural disasters, if the damage to the property in question is not covered by other insurance.

Act	Short title	Activity regulated	Description
Act of 29 June 2007 No 75 relating to securities trading	Securities Trading Act	Investment firms, credit institutions, regulated markets, multilateral trading facilities, organised trading facility, issuers of listed instruments, data reporting services providers, market operators and investors	The Act lays down requirements for establishing investment firms and providing investment services and conducting investment activities, including business activity and organisational requirements. The Act also lays down rules for trading in financial instruments that are listed or for which listing has been applied for on a Norwegian regulated market. This includes general provisions on conduct, rules on notification and disclosure requirements, bid obligations and prospectus requirements. The Act also lays down requirements for central counterparties (CCPs) and for clearing of some derivatives trades.
Act of 25 November 2011 No 44 relating to securities funds	Securities Funds Act	Securities funds, management companies	The Act lays down requirements for a securities fund licence and management of securities funds, including organisation and business activities. The Act contains provisions on investing assets, information to investors, rules on sale and marketing of securities funds and rules on cross-border management of securities funds.
Act of 20 June 2014 No 28 relating to alternative investment funds	Act on Alternative Investment Funds	Managers of alternative investment funds	The Act lays down requirements for a licence to manage an alternative investment fund, including the manager's organisation and business activities. The Act contains provisions on information requirements, marketing of alternative investment funds and rules on cross-border management of alternative investment funds.
Act of 15 March 2019 No 6 relating to central securities depositories and securities settlement	Central Securities Depository Act	Central securities depositories (CSDs, managers and account operators	The Act regulates the obligation and right to register financial instruments in a CSD and the legal effect of such registration. The Act also regulates licensing and organisational requirements for operating as a CSD. In addition to regulating CSDs, the Act also regulates securities settlement. The rules are intended to reduce the risks and costs associated with cross-border securities settlement and promote competition between CSDs. The new Act supersedes the Securities Register Act, but retains some of the previous act's rules, including registration of rights and legal effects of registration. The Act also implements the Central Securities Depository Regulation (CSDR) in Norwegian law.
Act of 17 December 1999 No 95 relating to payment systems	Payment Systems Act	Interbank systems and operators of such systems, systems for payment services, securities settlement systems and participants in payment systems	The Act lays down licensing requirements for establishing and operating interbank systems and notification requirements etc for systems for payment services. The Act also lays down rules on legal protection and collateral for clearing and settlement agreements in interbank systems and securities settlement systems and regulates terms and conditions for participation in payment systems.
Act of 26 March 2004 No 17 relating to financial collateral	Act on Financial Collateral	Parties to financial collateral agreements; the parties' creditors.	The Act is intended to promote secure, orderly and efficient financial collateral arrangements. Rules for commercial transactions that are customary in European financial markets shall be clear and predictable. Bankruptcy and security interest rules are coordinated to ensure predictability to enable financial market participants in case of default to know what will happen if a counterparty does not honour its commitments.

Act	Short title	Activity regulated	Description
Act of 21 June 2019 No 31 relating to Norges Bank and the monetary system etc	Central Bank Act	Central banking activities	The Act lays down rules for the organisation of Norges Bank, including the Bank's governing bodies and the relationship between the Bank and the political authorities. The Act specifies the Bank's tasks and instruments for promoting the objective of maintaining monetary and financial stability and an efficient and secure payment system. This includes eg the legal basis for the Bank's loans to and deposits from banks (bankers' bank) and other market participants, including market operations.
Act of 7 December 1956 No 1 on the supervision of financial institutions etc	Financial Supervision Act	Finanstilsynet (Financial Supervisory Authority of Norway), financial sector entities subject to supervision, including financial institutions, regulated markets, securities depositories and investment firms, auditors and accountants.	The Act specifies rules for the entities subject to supervision by Finanstilsynet, the Authority's organisation and its primary tasks and powers, including the orders it may issue to entities it supervises.
Act of 17 June 2016 No 30 relating to EEA financial supervision	Act on EEA Financial Supervision	EU supervisory bodies ESMA, EBA, EIOPA and ESRB.	The Act implements EEA rules corresponding to EU regulations establishing the European Banking Authority (EBA), the European Insurance and Occupational Pensions Authority (EIOPA), the European Securities and Markets Authority (ESMA) and the European Systemic Risk Board (ESRB), respectively, with necessary EEA adaptations.
Act of 4 December 2015 No 95 relating to the setting of financial benchmarks	Act on Financial Benchmarks	Administrators of benchmarks and entities under supervision by Finanstilsynet that make contributions to the setting of benchmarks.	The Act on Financial Benchmarks Implements the EU Benchmark Regulation in Norwegian law. The Benchmark Regulation is intended to ensure that generally used benchmark are set in a proper and reliable manner in order to facilitate well-functioning markets and promote financial stability. The Regulation lays down requirements for administrators of benchmarks and for the proper setting of benchmarks.
Act of 14 July 1950 No 10 relating to foreign exchange regulation	Foreign Currency Act		Most of the Act (foreign exchange regulation) has been repealed. Remaining provisions authorise the Ministry or Norges Bank to lay down regulations on the importation and exportation of means of payment and securities and on disclosure requirements in connections with such transactions.
Act of 13 June 1997 No 44 relating to limited liability companies	Limited Liability Companies Act	Limited liability companies	The Act lays down provisions on the establishment, operation, liquidation, merger and demerger of limited liability companies and on the relationship between the company and its shareholders, on company capital and company management etc.
Act of 13 June 1997 No 45 relating to public limited companies	Public Limited Companies Act	Public limited companies	The Act lays down provisions on the establishment, operation, liquidation, merger and demerger of public limited companies and on the relationship between the company and its shareholders, on company capital and company management etc.

Act	Short title	Activity regulated	Description
Act of 23 March 2018 No 3 relating to the Norwegian Banks' Guarantee Fund	Act on the Norwegian Banks' Guarantee Fund	Norwegian Banks' Guarantee Fund	The Act lays down rules inter alia on the organisation of the Norwegian Banks' Guarantee Fund, the Fund's task pursuant to Chapters 19 and 20 of the Financial Institutions Act and its relationship to Norges Bank and Finanstilsynet.
Act of 16 June 2017 No 47 relating to debt information and credit reports on private individuals	Debt Information Act	Credit registers and registering and providing debt information	The Act regulates the terms and licence for operating as a credit register, ie entity that shares debt information with banks and other credit providers for use in generating credit reports. The Act also lays down rules on credit registers' receipt and submission of debt information and their duty of confidentiality regarding this information.
Act of 20 December 2019 No 109 relating to the processing of data in credit information activities	Credit Information Act	Credit information activities	The Act has not yet entered into force. The Act pertains to the disclosure and other processing of data as part of credit information activities and supplements the Personal Data Act for credit information that comprises personal data. The Act also regulates the processing of data concerning legal persons in credit information activities.

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