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NORWAY

FINANCIAL SECTOR ASSESSMENT PROGRAM

July 24, 2020

TECHNICAL NOTE

SYSTEMIC LIQUIDITY

This Technical Note was prepared in October 2019, before the global intensification of the COVID-19 outbreak. It focuses on Norway's medium-term challenges and policy priorities and does not cover the outbreak or the related policy response, which has since become the overarching near-term priority.

Prepared By
**Monetary and Capital Markets
Department**

This Technical Note was prepared by IMF staff in the context of the Financial Sector Assessment Program in Norway. It contains technical analysis and detailed information underpinning the FSAP's findings and recommendations. Further information on the FSAP can be found at

<http://www.imf.org/external/np/fsap/fssa.aspx>

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Glossary

€STR	Euro Short-Term Rate
ABS	Asset-Backed Security
BMR	Benchmarks Regulation
BRRD	Bank Recovery and Resolution Directive
CCP	Central Counter Party
CD	Certificate of Deposit
CP	Commercial Paper
D-SIB	Domestic Systemically Important Bank
EEA	European Economic Area
EEC	European Economic Community
ELA	Emergency Liquidity Assistance
ESMA	European Securities and Markets Authority
EU	European Union
FMI	Financial Market Infrastructure
FSA	Finanstilsynet
FX	Foreign Exchange
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GPFG	Government Pension Fund Global
HQLA	High-Quality Liquid Asset
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
LCR	Liquidity Coverage Ratio
Libor	London Interbank Offered Rate
LOLR	Lender-of-Last-Resort
LTV	Loan-to-Value
MoF	Ministry of Finance
MoU	Memorandum of Understanding
NBFI	Nonbank Financial Institution
NBO	Norges Bank's Settlement System
Nibor	Norwegian Interbank Offered Rate
NOK	Norwegian kroner
NoRe	Norske Finansielle Referanser AS
NOWA	Norwegian Overnight Weighted Average
NSFR	Net Stable Funding Ratio
OECD	Organization for Economic Co-operation and Development
OMO	Open Market Operation
OSE	Oslo Stock Exchange
OTC	Over-The-Counter
PD	Primary Dealer

NORWAY

RMBS	Residential Mortgage-Backed Security
T-bill	Treasury Bill
U.K.	United Kingdom
U.S.	United States
VAT	Value-Added Tax

EXECUTIVE SUMMARY

Norwegian banks and other financial institutions rely heavily on capital markets for liquidity and risk management. Liquidity conditions in the Norwegian financial sector are affected by central bank operations and the lending and funding activities of financial institutions, both domestically and abroad. Nearly 40 percent of the funding of Norwegian banks is obtained from market sources, using commercial paper, covered bonds, and senior unsecured bonds issued both domestically and abroad. Correspondingly, money markets, foreign exchange (FX) swap markets and bond markets are crucial to the credit intermediation process and a dislocation in these markets—the inability of financial institutions to roll over, or obtain new, funding—could have significant consequences for financial stability. Against this background, this note analyzes core funding markets for Norwegian banks and assesses Norges Bank’s capacity to manage systemic liquidity conditions and counteract liquidity shocks in normal times and in times of stress.

The functioning and resilience of the FX swap market is crucial in Norway due to its dual role as liquidity management and hedging instrument. Deep and liquid FX swap markets are used by banks for liquidity management and hedging purposes. These markets function well, and their trading activity is usually very resilient during times of stress.

Unsecured overnight and repo markets are also active, though currently less important. Large banks are especially active in the interbank market and trade central bank reserves overnight. Participants access this segment mainly to manage swings in payments and structural liquidity.¹ The repo market though small is growing in terms of activity.

There are two key benchmark interest rates, which are referenced in many financial contracts including many derivatives contracts. These benchmarks include the Norwegian Overnight Weighted Average rate (NOWA) and the Norwegian interbank offered rate (Nibor) and are critical for market functioning. The administrators of these benchmarks, Norges Bank and Norske Finaniselle Referanser AS (NoRe), have undertaken efforts to improve their accuracy and integrity to adhere to global standards. The European Union Benchmark Regulation entered into force in Norway in December 2019 and the framework for the Norwegian interbank offered rate (NIBOR) was changed with effect of January 1, 2020. Further adjustments to the improved NIBOR should be made if and as needed to ensure smooth market functioning and market integrity.

Domestic money and fixed income and securities markets are relatively small. This is because banks rely heavily on foreign markets for funding and the government does not have a large borrowing need. Given a limited supply of government securities, the Norwegian bond market is dominated by issuance from banks. Bond market participants that need safe-haven assets tend to use covered bonds. Meanwhile, banking groups that issue covered bonds (via mortgage companies)

¹ In this note, structural liquidity refers to the level of reserves in the banking system prior to market operations by Norges Bank to supply or drain reserves from the banking system.

have partially substituted other sources of wholesale funding, such as senior unsecured funding and short-term wholesale funding, with this longer-term instrument.

Systemic liquidity concerns relate to a variety of factors. These include banks' high reliance on market funding, concentrated securities holdings and common risk exposures through underlying lending portfolios. Such reliance exposes banks to investor sentiment and market conditions, with risks potentially compounded by banks' cross holdings of covered bonds. Since covered bonds have underlying collateral of mortgage loans, shocks in the housing market could impair the functioning and liquidity of this market.

Banks' reliance on foreign investors contributes to diversification of the investor base but makes issuers vulnerable to global market sentiment. Some large Norwegian banks rely heavily on both short- and long-term market-based funding in FX, benefitting from currently favorable market conditions (low interest rates in FX borrowing).

Norges Bank's framework for conducting standard liquidity management operations is well-established and effective. A robust liquidity forecasting framework and a regular schedule of open market operations provide an effective operational framework for the transmission of policy signals, as evidenced by the high correlation of the policy rate and the operational target (NOWA rate).

However, the apparent unwillingness of banks to lend at quarter and year end creates some market frictions and spikes in the NOWA around these dates. This is a phenomenon that appears to be driven by capital and leverage ratio requirements. Norges Bank and the FSA should therefore consider whether it is possible to average out these requirements over each quarter.

Expanding efforts to analyze the availability of collateral across eligible counterparties would be beneficial. Monitoring and assessing information about amounts of eligible collateral available to counterparties and used collateral should inform Norges Bank on (a) its risk taking, (b) the impact on secondary market liquidity, (c) the level of unencumbered assets, and (d) interaction with liquidity regulation, i.e., its liquidity coverage ratio (LCR)-requirements and availability and use of high-quality liquid assets (HQLA).

Operational preparedness for support of key securities markets could be improved further through a framework for intervention. Norges Bank should lead preparatory work to improve inter-agency arrangements with the Ministry of Finance (MoF) and FSA to support and ensure smooth functioning of critical securities markets, including for covered bonds.

Norges Bank should continue its work to test a framework for the acceptance of mortgage loan portfolios as collateral in an emergency liquidity situation. Such a framework would substantively broaden the universe of potentially acceptable collateral and thereby improve Norges Bank's capacity to provide bilateral ELA or market-wide liquidity support. The preparation should involve relevant counterparties to develop and test the exchange of relevant loan and portfolio information in a timely and accurate manner.

Table 1. Norway: FSAP Key Recommendations

Recommendations and Authority Responsible for Implementation	Timing¹
<i>Norges Bank's Standard Operational Framework</i>	
Assess and monitor more closely the availability of collateral across eligible counterparties. (Norges Bank; ¶78)	I
Assess whether changing the basis for calculating the leverage ratio (averaging) and other measures may increase money market activity at quarter and year end. (FSA; ¶77, 78)	ST
<i>Improving the Resilience of Money, Bond and FX Markets</i>	
Continue ongoing efforts to complete the transition towards a Nibor benchmark in line with the BMR to ensure market integrity. (FSA; ¶72)	I
<i>Norges Bank's Nonstandard Operational Framework</i>	
Continue work to test a framework for the acceptance of mortgage loan portfolios as emergency liquidity assistance (ELA) collateral. (Norges Bank; ¶83 and 84)	ST
Clarify further relevant roles and responsibilities regarding liquidity support to critical securities markets and improve inter-agency arrangements with the MoF and the FSA. (Norges Bank; ¶82)	I
Continue international cooperation with other central banks to ensure that steps can be taken quickly to provide liquidity support in foreign currencies in case of a severe financial crisis. (Norges Bank; ¶86)	ST
¹ I: Immediate (within 1 year); ST: Short term (1–2 years); and MT: Medium Term (3–5 years).	

INTRODUCTION²

1. Systemic liquidity may be viewed as liquidity conditions affecting the entire financial sector, including banks, insurers and others. During the global financial crisis (GFC), systemic liquidity risks were underrecognized by both the private and public sectors and triggered interventions by governments and central banks. New regulatory requirements (Basel III) now include liquidity ratios, i.e., the LCR and Net Stable Funding Ratio (NSFR), which encourage banks to rely on more stable sources of funding and to hold highly liquid assets that are less likely to suffer from valuation losses during market distress. Another benefit of the post crisis regulatory improvements was to reduce risks from a lack of liquidity in liquid asset portfolios as well as losses on those portfolios. These measures however focus on individual banks and less on the build-up of financial sector-wide (systemic) liquidity risks, e.g., due to the banks' common asset exposures or common reliance on similar forms of market-based funding, domestically or cross-border.

2. Maturity mismatches and asset-liability FX mismatches increase systemic liquidity vulnerabilities. Maturity mismatches lie at the heart of systemic liquidity vulnerabilities and such vulnerabilities are expressed as an inability of institutions to maintain or roll over existing or access new funding (funding liquidity risk), and/or an inability to liquidate assets at reasonable prices within a reasonable timeframe (market liquidity risk). FX asset-liability mismatches may compound systemic liquidity vulnerabilities due to an increased exposure to foreign investor sentiment and as central banks can more easily and effectively backstop domestic currency funding shortfalls. The systemic liquidity assessment in this note therefore assesses the functioning and resilience of key money and FX instruments (cash and derivative) and the behavior of wholesale funding markets to comprehensively identify vulnerabilities.

3. The note is organized as follows. Section II provides insights into key money and fixed income markets, including an assessment of banks' FX funding and reliance on foreign exchange markets. Section III covers the authorities' liquidity management approach, with a focus on Norges Bank's operational framework. Section IV covers key issues of relevance to financial stability and systemic liquidity. This section elaborates on four key issues. First, it analyzes whether banks' strong reliance on market-based funding in particular through covered bonds poses any systemic liquidity risks. Second, it reviews whether FX markets are functioning and resilient, given their important role as liquidity management and hedging instrument. Third, it assesses Norges Bank's standard operational framework and its capacity to manage challenging liquidity conditions. Fourth, it assesses Norges Bank's capacity to provide liquidity in times of stress.

² Prepared by Mark Buessing-Loercks (IMF).

STRUCTURE OF NORWAY'S KEY FUNDING MARKETS

A. Money Market and FX Markets

Money Markets

4. FX swaps are the most important money market instruments in Norway. In particular large banks use FX swaps both for liquidity management and hedging purposes, with maturities ranging between overnight (predominantly liquidity management) and longer maturities up to 91 days (mainly hedging). As a result, FX swaps account for more than 90 percent of all FX transactions, other instruments, including spot transactions (five percent), outright forwards (two percent), cross currency basis swaps (one percent), or currency options (less than one percent) play a much smaller role. The key players are Nordic banks that swap foreign currency funding for Norwegian kroner (NOK) to fund Norwegian assets, mainly pension funds and other asset managers are banks' counterparts, swapping NOK for foreign currency to hedge investments in foreign currencies. In addition, foreign banks and hedge funds are another important counterpart; they act as market makers and use the FX swap market to take positions on interest rates and the exchange rate. Trades are initiated bilaterally and settled centrally via LCH Clearnet or CLS Bank (FX swaps, cross currency swaps, FX spot transactions).

Table 2. Norway: Money Market Instruments, June 2019
(In billions of Norwegian Kroner)

Instrument	Amount Outstanding		Main Issuers	Maturities
	Domestic	Foreign		
Treasury bills	70.3	-	Government of Norway	≤12 months
Commercial paper, issued by				≤12 months
Local governments	51.9	-	Local governments	
Nonfinancial Corporations	17.8	7.2	Corporates	
Financial Institutions	1.9	135.9	Large banks	

Source: Statistics Norway.

5. FX turnover in NOK is small compared to a wide range of developed market currencies and the most actively traded emerging market currencies. The NOK is the eighth most actively traded currency worldwide, measured by turnover-to-gross domestic product (GDP). The majority of FX transactions in NOK is carried out abroad.

6. The unsecured overnight market is active, though less important, a segment in which especially domestic large banks trade central bank reserves overnight. Participants access this important onshore segment mainly to manage the at times large swings in structural liquidity and borrow or lend overnight to manage excess liquidity or a shortfall; more permanent financing needs are addressed with longer term funding.

7. Repo transactions account for a relatively small but growing share of market turnover and tend to have longer maturities, mostly 8–31 days. Most repurchase agreements are made with Norwegian Treasury bills, government bonds, and covered bonds as collateral and are over the counter (OTC) trades.³ This segment is increasingly growing—though from a small base—and activity has increased in particular with large banks and savings banks as net cash borrowers in this market providing liquidity to asset managers or hedge funds which lend securities, e.g., covered bonds to increase leverage and duration of their portfolio.

8. Treasury bills (T-bills) are the most important domestic short-term debt instrument in the Norwegian money market. As part of the overall debt strategy, Norges Bank regularly issues T-bills on behalf of the Ministry of Finance with maturities of up to one year. All T-bills are listed on the Oslo stock exchange (OSE), and OTC activity in T-bills is limited. T-Bills are held mainly by the government,⁴ insurance companies and pensions funds; domestic banks hold a comparatively low share of currently 16 percent. The use of T-bills as collateral in repo transactions is limited. Secondary market liquidity (measured by turnover ratio) is reportedly overall stable, although measurable liquidity (as illustrated through turnover ratios in Figure 2) shows a slightly declining trend, as banks are not obliged to report all transactions conducted. Municipalities also issue commercial paper domestically, though at smaller amounts.

9. There are virtually no bank commercial paper (CPs) and certificates of deposit (CDs) in NOK, however large banks issue CPs and CDs abroad in U.S. dollar and other currencies. Large Nordic banks' access to foreign short-term funding markets in particular in the United States (U.S.) currently provides for a competitive advantage and reduces overall funding costs. These large banks essentially manage their liquidity on a U.S. dollar basis.

FX Markets

10. The Norwegian FX spot market is small compared to the FX swap market, key players are foreign banks and large Nordic banks. The larger part of the foreign turnover is performed by financial institutions, while a large part of domestic players is non-financial; the key participants in the Norwegian FX outright forward market are foreign banks and Norwegian banks. The FX forward market is used to hedge FX exposure and to take positions in the NOK. Liquidity in the spot market is perceived to be rather low, given participants' strong focus on the FX swap segment.

11. The turnover in the small market segment of cross currency swaps has increased substantively since 2007. Cross currency swaps form an integral part of mortgage companies' hedging strategies.⁵ Mortgage companies that issue covered bonds in foreign currency are obliged

³ Repurchase agreements with listed securities as collateral, such as Treasury bills, government bonds, and covered bonds, are usually registered on the stock exchange if one of the parties in the transaction is a member of the exchange.

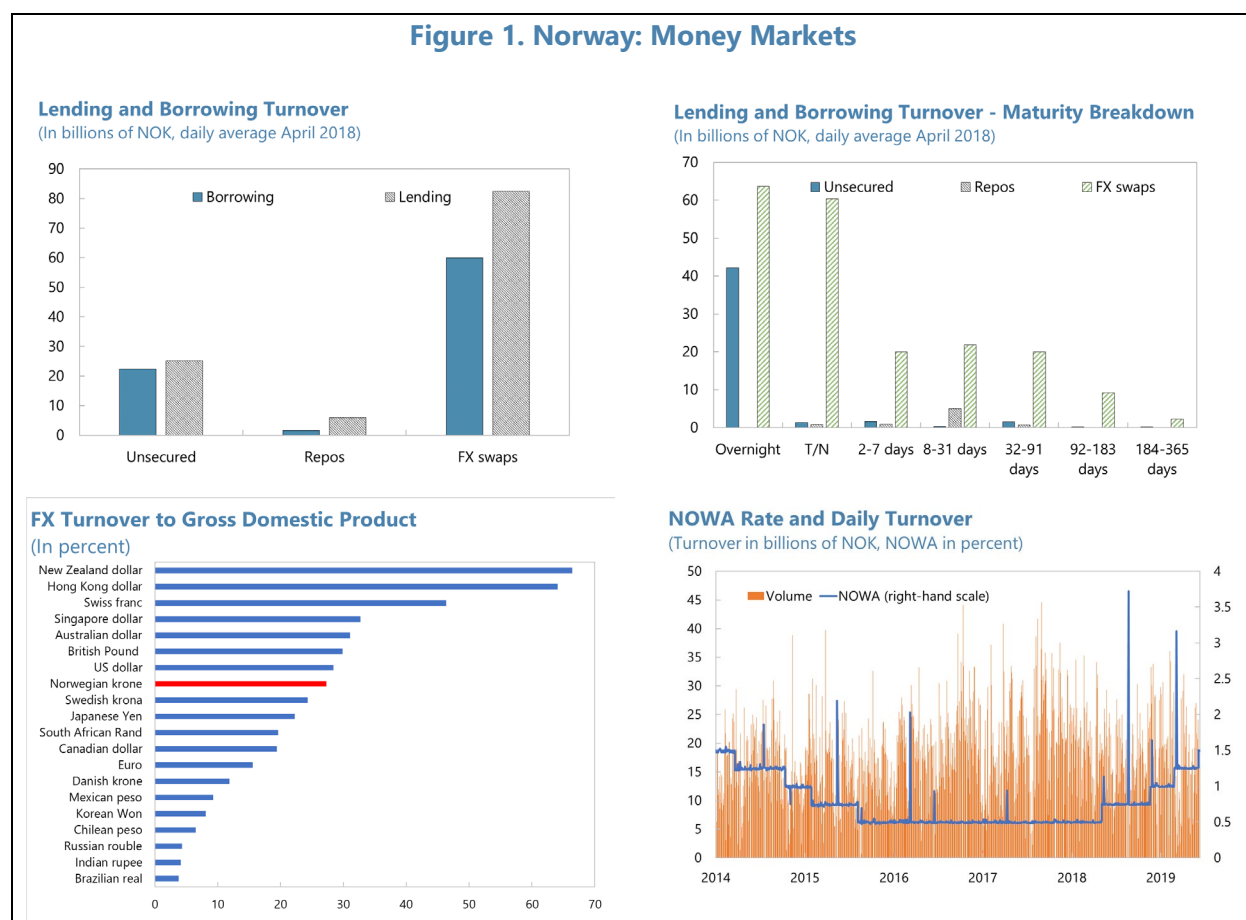
⁴ Such holdings refer to repo transactions with primary dealers which may enter into repo transactions with the government collateralized by T-bills.

⁵ Mortgage companies enter into cross currency swaps to obtain NOK in exchange for foreign currency raised through the issuance of the covered bond.

to enter into interest rate and foreign exchange hedges that have the same maturity as the corresponding covered bond. A substantive share of transactions includes intra-group cross currency basis swap arrangements between the issuing mortgage company and the parent bank company, which in turn may hedge the FX risk via shorter term (e.g., three months) FX swaps. Other counterparties include asset managers, pension funds and large international banks. OTC trades are cleared and settled bilaterally.

12. Cross currency basis swap rates indicate that tensions in this market, as witnessed during the global financial crisis (GFC), are currently muted.⁶ Cross currency basis swap rates currently trade at a level close to zero, indicating that funding stress in U.S. dollar market is and has been muted, especially when compared with other major currencies, such as the euro. This indicator suggests U.S. dollar funding stress in Norway during the NOK episodes of heightened volatility in particular between 2008, 2009, and in 2012. The indicator points to muted levels of volatility since then, with U.S. dollar funding stress in Norway more limited than in other major economies.

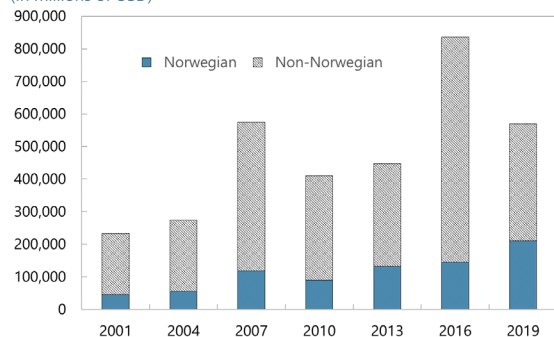
Figure 1. Norway: Money Markets



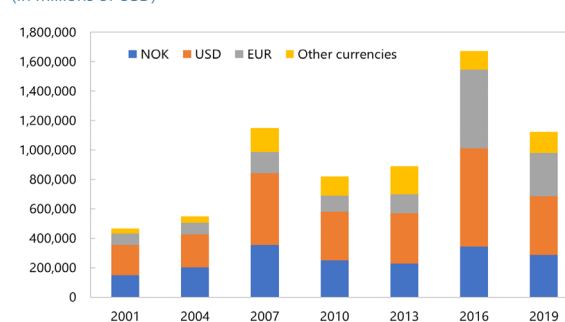
⁶ European issuers can tap U.S. funding markets and issue U.S. dollar instruments and subsequently swap the proceeds into European local currencies (e.g., EUR, NOK) in order to diversify into other funding sources or to obtain cheaper funding. During the global financial crisis (GFC), European banks' access to U.S. short term markets was impaired, also because U.S. money market funds reduced their investments into such instruments and banks had to shift to alternative funding sources, such as FX swaps. The dependence of European banks on wholesale funding in U.S. dollar created supply and demand imbalances and EUR/USD cross-currency basis spreads widened.

Figure 1. Norway: Money Markets (Concluded)**Monthly FX Market Turnover - Counterparty Breakdown**

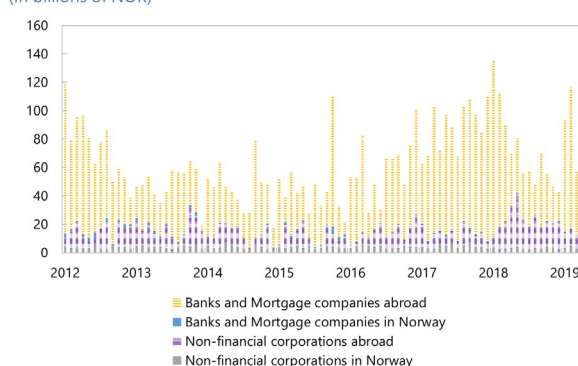
(In millions of USD)

**Monthly FX Market Turnover - Currency Breakdown**

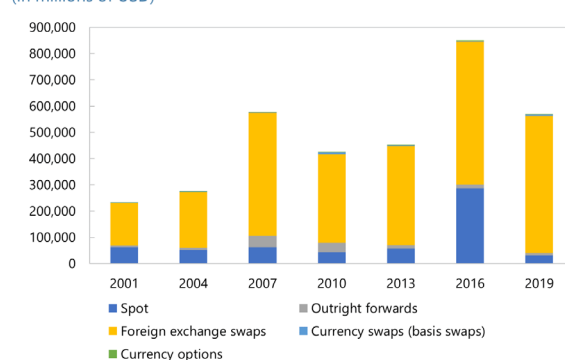
(In millions of USD)

**Private Sector Short-Term Debt Issuance**

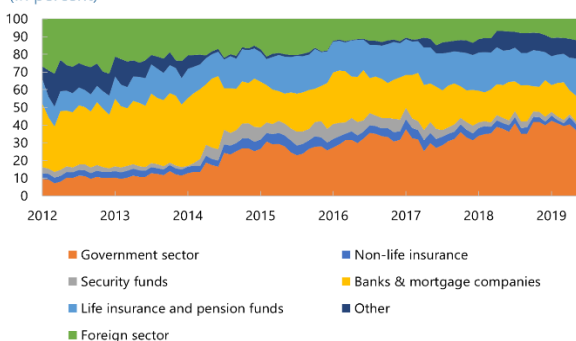
(In billions of NOK)

**Monthly FX Market Turnover - Product Breakdown**

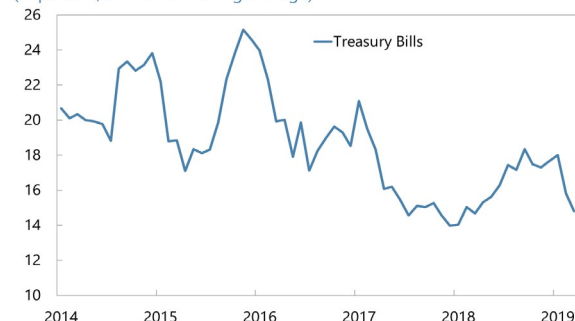
(In millions of USD)

**Treasury-Bill Investor Breakdown**

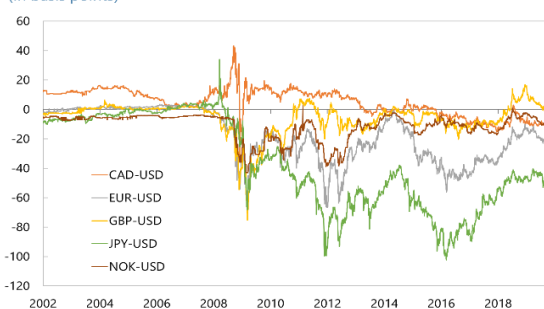
(In percent)

**Turnover Ratios**

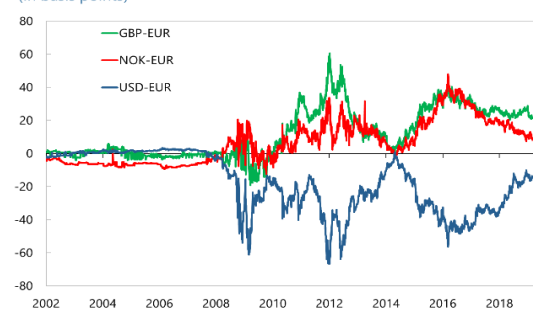
(In percent, six month moving average)

**5 Year Cross Currency Basis Spreads Against U.S. dollar**

(In basis points)

**5 Year Cross Currency Basis Spreads Against Euro**

(In basis points)



Source: Bank for International Settlements, Triennial Central Bank Survey 2019, Bloomberg, Norges Bank, Oslo Bors, Statbank Norway.

B. Money Market Reference Rates

Nibor

13. The most commonly used reference rate is Norway is Nibor (Norwegian Interbank Offered Rate). Nibor, administered⁷ by Norske Finansielle Referanser AS (NoRe),⁸ is intended to reflect the interest rate a bank requires for unsecured money market lending in NOK to another highly-rated bank (lending rate). Nibor is quoted at maturities of one week, and one, two, three and six months. Three- and six-month Nibor are particularly widely used as benchmarks in financial contracts, including in particular various types of debt securities issued in Norway. Given that domestic transactions in the interbank market or the issuance of CDs or CPs occur only occasionally, Nibor is in practice not transaction-based, and the 6 panel banks effectively base their submissions on estimates (expert judgement).

14. Nibor rates may vary significantly, especially on the shorter tenors and several factors may feed into a Nibor estimate. The Nibor rate measures the implicit NOK rate banks pay when borrowing dollars and swapping them for NOK. Changes in the spreads banks pay on their dollar funding often feed through to Nibor rates, as can be seen from the close link between London interbank offered rate (Libor) spread and Nibor spreads. The rate banks pay to borrow NOK through the FX swap market depends on (a) their funding cost and lending opportunities in dollars and euro and (b) the price of swapping U.S. dollar for NOK. While all banks pay the same price for swapping U.S. dollar for NOK, bank funding costs in U.S. dollar may vary quite significantly.⁹ Different access to short term U.S. dollar funding thus is a source of heterogeneity in banks' short-term funding costs in NOK and these heterogeneities may ultimately feed into individual estimates and the ultimate determination of Nibor.

NOWA

15. The NOWA rate is the interest rate on unsecured overnight interbank lending in NOK. NOWA is soon (as of January 1, 2020) administered by Norges Bank and banks borrow and lend central bank reserves in this market. In contrast to Nibor rates, the NOWA rate is usually calculated based on actual trades. The NOWA panel currently comprises 11 panel banks that make daily submissions to Norges Bank.

16. Spreads in the unsecured overnight marked (NOWA) are usually very small, and on average less than 1 basis point. In particular on quarter- and year-ends, activity in the unsecured

⁷ Since September 30, 2019, Global Rate Set Systems Ltd. (GRSS) acts as calculating agent and licensing agent for Nibor.

⁸ NoRe is established and owned by Finance Norway (the industry organization for the financial industry in Norway) with the purpose to administer financial benchmarks. NoRe has approval from the Norwegian Ministry of Finance to act as administrator for Nibor. NoRe has applied for authorization under the BMR which entered into force in Norway on 20 December 2020.

⁹ Only a subset of the large Nordic banks has access to CP and CD funding in U.S. dollar and can borrow abroad at rates close to US Libor, given their high rating. Banks without access to this type of funding may be reliant on borrowing U.S. dollar against EUR in the FX swap market, which can be significantly more expensive.

overnight market may drop significantly as banks are reportedly unwilling to lend on these days. Capital regulations and the fact that contributions to the deposit insurance and the resolution fund are determined based on a bank's balance sheet on that day disincentivize banks to lend. On days with low turnover, NOWA is calculated based on banks' estimates, causing the NOWA rate to spike on such days.¹⁰ Also on other days, turnover may be limited. On average, less than half of the 11 panel banks report daily lending activity to Norges Bank.

17. Both administrators Norges Bank and NoRe have undertaken efforts to improve accuracy and integrity of the NOWA and Nibor benchmarks. Both benchmarks aim at taking into account the International Organization of Securities Commissions (IOSCO) principles, which serve as global standards for regulatory requirements for financial benchmarks. Subject to inclusion in the European economic area (EEA) agreement foreseen for the end of 2019, the EU Benchmark Regulation (BMR)¹¹ will generally be applicable to the provision of benchmarks, the contribution of input data to a benchmark and the use of a benchmark by investors. In the EU, the BMR is scheduled to enter into force as of January 1, 2020 for 'uncritical' benchmarks and as of January 1, 2022 for 'critical' benchmarks.¹²

18. Norges Bank as a central bank administrator does not fall under the scope of the BMR but took the initiative to establish a working group on alternative reference rates in NOK. The working group comprises representatives of Norwegian banks and foreign branches with good insight into the relevant Norwegian markets and the use of Norwegian reference rates. The objective of the working group is to establish an alternative reference rate that can be used as an alternative reference rate for the Norwegian kroner.

19. Very recently a new 'reformed NOWA' benchmark rate was recommended by the working group. Under the proposed new regime, Norges Bank will become the administrator for NOWA as from January 1, 2020. The current system with panel banks will be discontinued and transition towards a transaction-based calculation of the rate, based on already available money market data (provided to Norges Bank). On days with very low liquidity (insufficient number of transactions), the calculation will be based on a combination of historical data and actual traded data. Different calculation methods¹³ are currently under investigation, including criteria that would

¹⁰ The calculation methodology at times has led to rates at levels even beyond Norges Bank's marginal lending rate.

¹¹ The regulation has the objectives to a) improve governance and controls over the benchmark process, b) improve the quality of input data and methodologies used by benchmark administrators, (c) ensure that contributors to benchmarks and the data they provide are subject to adequate controls, and (d) protect consumers and investors through greater transparency.

¹² BMR defines 'criticality' based on quantitative criteria or a combination of quantitative and qualitative criteria. The main quantitative criterion is met in case "the benchmark is used for financial instruments or financial contracts, having a total value of at least EUR 500 billion." On a qualitative basis, the benchmark can be considered critical if the benchmark has no, or very few, appropriate market-led substitutes and termination of the benchmark would negatively impact market integrity, financial stability, consumers, the real economy, or the financing of households and businesses.

¹³ Reference is made to calculation methods applied by the Eurosystem and the Bank of England: In the euro area, if the conditions for calculating the Euro Short-Term Rate (€STR) are not met, the rate is calculated as a volume-weighted average of the previous day's transactions and the transactions that have taken place. In the UK,

(continued)

trigger such an alternative calculation of NOWA. Considerable progress has been made and the timely transition towards the reformed NOWA regime by January 1, 2020 is very likely.

20. The European Commission is to decide on the classification of the Nibor reference rate. The European Commission will have not decided yet about the status of the Nibor reference rate, given that the FSA and the European Commission are only at an early stage of discussions about this matter. Therefore, Nibor has initially (for an interim period) been classified as ‘uncritical.’ Consequently, NoRe as administrator applied for recognition by the end of 2019 to the FSA in order to be BMR-compliant as of January 1, 2020.

21. NoRe as administrator foresees to improve the determination of Nibor rates by panel banks and to increase clarity on the determination of panel banks’ contributions.¹⁴ Whereas the methodology has been amended, it is widely expected that Nibor will practically continue to be based on panel banks’ estimates, as transactions in the domestic unsecured interbank market are still lacking. The new calculation methodology introduces a waterfall approach, which prioritizes information from transactions:

- Level A: interest rates from interbank lending to leading banks (as defined in current Nibor rules);
- Level B: prices from sales of CDs; such CD rates would represent a borrowing rate, requiring an adjustment for the difference between lending and borrowing; and
- Level C: expert judgements; judgements should take into account relevant market information about the bank’s borrowing costs abroad, preferable actual transactions or committed quotes, and the bank’s committed quotes on CDs (such quotes shall be given at least 50 percent weight compared to expert judgments in the calculation of input data).

C. Sovereign Bond Markets

22. As the nonoil fiscal deficit is compensated through transfers from the sovereign wealth fund, primary market liquidity in government bond markets is comparatively low. Government borrowing is used to finance loans made by state lending institutions¹⁵ and it does not finance the national budget deficit.¹⁶ Outstanding government debt securities account for NOK 387 billion, representing only 18.2 percent of GDP, a very low share by international standards, e.g., compared with other Nordic or European countries.

the Sterling Overnight Index Average is calculated using the mean of the spread of SONIA to Bank Rate over the previous five publication days, excluding the days with the highest and lowest spread.

¹⁴ NoRe conducted a public consultation (August 20, 2019–October 2, 2019) on the new methodology and invited participants to provide comments.

¹⁵ Including mainly the Norwegian State Educational Loan Fund, the Norwegian State Housing Bank, the Norwegian Public Service Pension Fund residential mortgage program, Innovation Norway and Export Credit Norway.

¹⁶ The nonoil budget deficit is financed by transfers from the GPFG.

Table 3. Norway: Bond Market Instruments, June 2019

(In billions of Norwegian Kroner (NOK))

Instrument	Amount Outstanding		Main Issuers	Maturities
	Domestic	Foreign		
Central government bonds	386.8	-	Government of Norway	≤ 10 years
Local government bonds	110.0	-	Local governments	
Covered bonds	587.5	714.0	Mortgage companies	Issued abroad: ≤ 11 years, Domestic: ≤ 6 years
Financial institution senior unsecured bonds	343.2	306.0	Large banks	≤ 5 years
Corporate bonds	216.2	34.0	Large corporates	≤ 10 years
Foreign issuer bonds	316.6	-	International organizations	≤ 10 years
Public non-financial corporations	114.3	310.1	Public non-financial corporations	≤ 15 years

Source: Statistics Norway.

23. Since 2015 Norges Bank has been operationally responsible for the management of government debt. The MoF sets annually an upper limit for gross borrowing and a minimum average time to refixing. Within a mandate laid down by the MoF, Norges Bank formulates and publishes on an annual basis a debt management strategy which provides information on maximum annual issuance volumes for government bonds and T-bills. While government borrowing should be carried out at low costs, it should contribute to promoting well-functioning financial markets through maintaining a government securities yield curve with maturities up to ten years.

24. Norges Bank has introduced measures to support liquidity in government securities markets and to ensure the benchmark status of government bonds:

- Norges Bank has established a primary dealer (PD) system, under which four PDs (Danske Bank, DNB, Nordea and SEB) have the sole right and obligation to participate in government bond auctions and are obliged to quote binding bid and offer prices on Oslo Børs¹⁷ for each government security.
- PDs can enter into (one week) repo agreements with the government (via Norges Bank), under which they can borrow (up to a limit) government securities, thereby reducing the need for PDs to hold large inventories of government securities.

¹⁷ In January 2020, Oslo Børs will be replaced by Bloomberg as auction and trading platform.

- Norges Bank may buy back bonds with a residual maturity below one year, allowing for a more gradual adjustment of investors' government bond portfolio and contributing to increasing demand for government securities that remain outstanding.

25. All Norwegian government bonds are listed on Oslo Børs and can be traded on the stock exchange.¹⁸ The four PDs are obligated to quote firm bid and ask prices for a minimum volume of all the government bonds listed on Oslo Børs.¹⁹ Notably, only a small share of government bond trades takes place (electronically) on the exchange. Most trades are performed bilaterally and in recent years, electronic trading platforms for government bonds, such as MTS, Eurex Bonds, Tradeweb and Bondvision gained importance. This makes it difficult for market participants and authorities to measure and monitor overall liquidity conditions. Norges Bank closely monitors liquidity conditions across all major fixed income segments.

26. Norwegian government bonds are held predominantly by foreign investors. Domestic banks and mortgage companies hold a share of government bonds that is overall increasing, however, remains at a low level (of below 20 percent). 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. Banks also hold government bonds as part of their liquidity portfolio and government bonds play an important role as HQLA level 1 asset²⁰ to fulfil domestic LCR requirements.

27. Secondary market liquidity is considered to be low relative to other Nordic or European government markets, given the small size of the market. Participants perceive Norwegian covered bonds overall to be more liquid than government bonds, e.g., measured based on the maximum transaction size that could be traded without price distortions. Secondary market activity measured by turnover ratio is overall stable, but at times appears to be more volatile and more susceptible to shocks (e.g., during 2014–15) than covered bonds or senior unsecured bonds.

D. Covered Bond and Senior Unsecured Bond Markets

28. The banking sector is the largest issuer in the Norwegian bond market. Norwegian banks rely strongly on market-based funding, which represents a share of 50 percent of banks' liabilities. In recent years, after the introduction of a covered bond legislation in 2007, covered bonds have become the banks' most important funding source and banks have accordingly reduced their reliance on senior unsecured bonds and in short-term wholesale and interbank funding.

¹⁸ 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, and OTC is a more common form of trading. 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.

¹⁹ Primary dealers are also required to report daily on their activities in government securities, however, a large share of Norwegian government bond investors are foreign nationals, implying that their trades not necessarily conducted via a primary dealer.

²⁰ See also appendix 1 with an overview of HQLA assets and corresponding haircuts.

29. Covered bonds are the most important funding source and represent approximately 50 percent of market-based funding; senior unsecured bonds account for a stable share of 20 percent. In turn, the importance of short-term wholesale and interbank funding has been following a decreasing trend since 2007, now accounting for approximately 30 percent of total market-based funding. The funding mix may differ considerably across individual Norwegian banks. Norway's largest bank currently strongly resorts to short-term wholesale funding, representing a share between 40 and 50 percent in recent years. Smaller banks without access to short-term wholesale funding markets abroad rely on short-term wholesale funding to a much lesser extent (approximately 20 percent).

30. Banks are increasingly resorting to funding abroad; today, the slight majority of covered bonds is issued in foreign currency. 46 percent of covered bonds outstanding were issued in NOK, 54 percent were issued in foreign currencies, i.e., mainly in euro (48 percent), U.S. dollar (4 percent) and other currencies (3 percent, e.g., Swedish krona). Large discrepancies exist across individual issuers. Smaller issuers normally focus on issues in domestic currency, whereas large issuers rely to a much larger extent on issuance in foreign currency. The largest covered bond issuer (DNB Boligkreditt) has issued a share of 80 percent of its covered bonds in foreign currency. In addition, the largest banks are issuing long-term senior unsecured debt abroad through EMTN programs, swapping the proceeds back to Norwegian kroner.

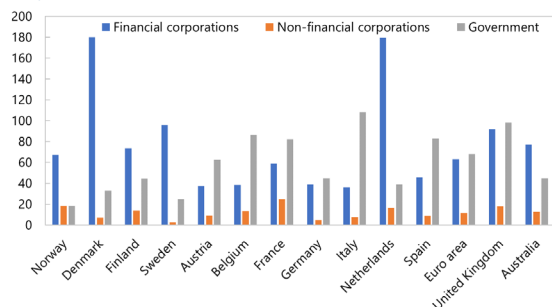
31. The domestic covered bond investor base remains concentrated, with a large share of covered bonds held by banks. Covered bonds are considered a liquid and high credit quality investment product that serves as a suitable substitute for Norwegian government bonds. The investor breakdown suggests a large degree of interconnectedness of the Norwegian banking sector with regard to mortgage lending risks. A large and stable share of approximately 50 percent of domestic covered bonds is held by financial institutions. Covered bonds play an important role as HQLA level 1 asset for domestic banks to fulfil domestic LCR requirements. Other, less important covered bond investor groups are pension funds, insurance companies and foreign investors. Secondary market liquidity is stable and according to the Norges Bank money market survey market participants consider covered bonds to be overall more liquid than government bonds.

32. To improve secondary market liquidity, Oslo Børs has developed and launched a covered bond benchmark list. Since June 2014, large size benchmark covered bonds are subject to continuous indicative quotation and a service provider—Nordic Bond Pricing—provides independent pricing services on daily basis.

Figure 2. Norway: Bond Markets

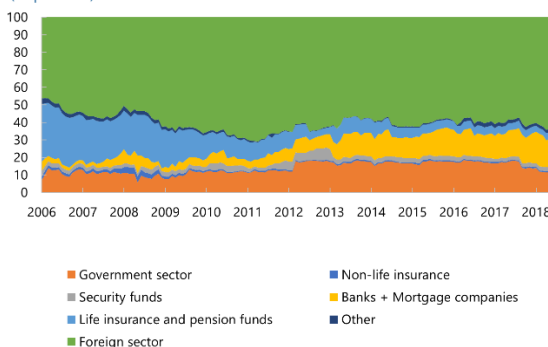
Debt Securities to Gross Domestic Product - Issuer Breakdown

(In percent)



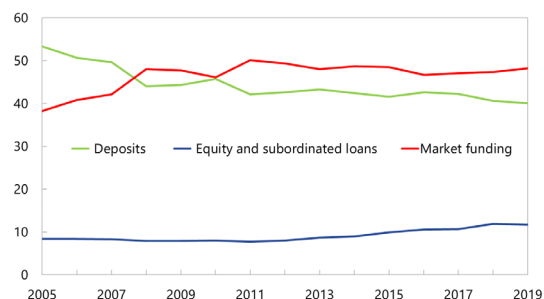
Government Bond Investor Breakdown

(In percent)



Funding Sources of Norwegian Banks

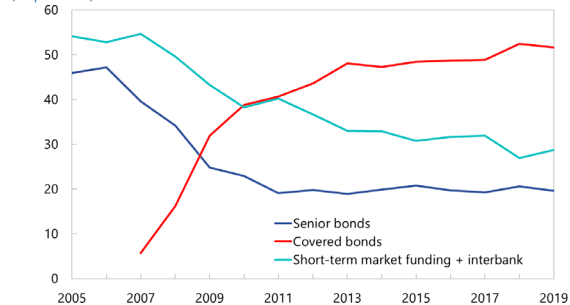
(In percent of total funding)



Note: 2019 data is till Mar 31st

Market-based Funding of Norwegian Banks

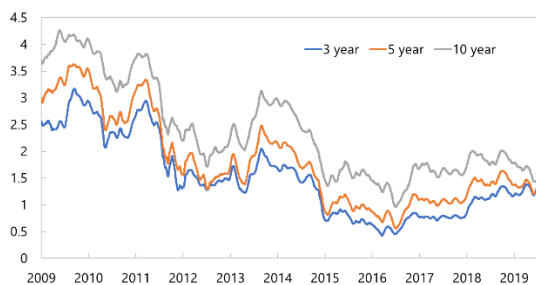
(In percent)



Note: 2019 data is till Mar 31st

Government Bond Yields

(In percent)



Turnover Ratios

(In percent, 6 month moving average)

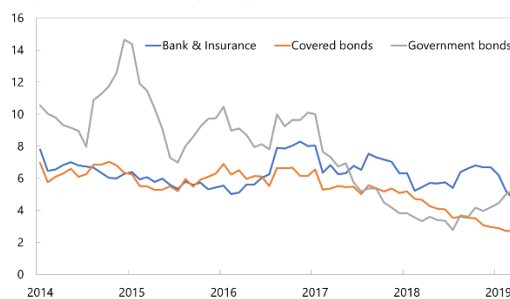
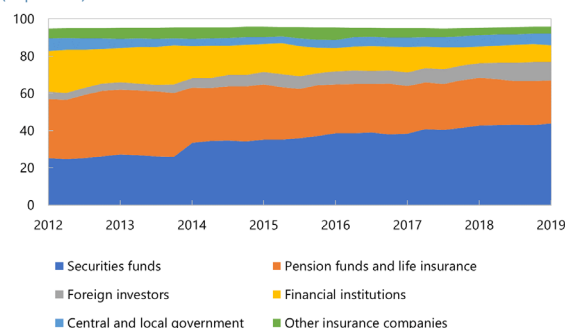
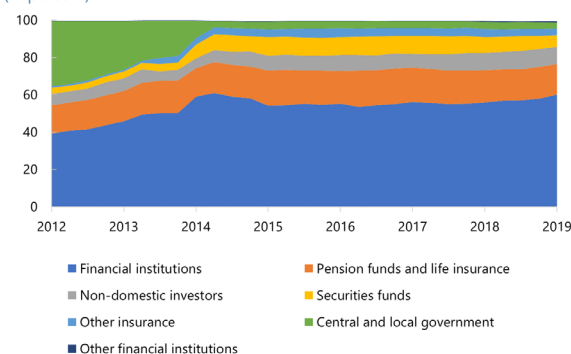
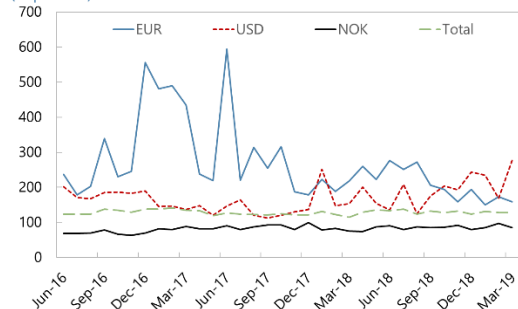
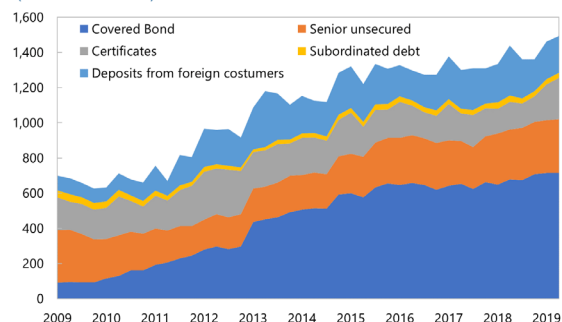


Figure 2. Norway: Bond Markets (Concluded)

Domestic Senior Unsecured Bonds Investor Breakdown
(In percent)Domestic Covered Bond Investor Breakdown
(In percent)Large Banks' Total LCR and LCR in Significant Currencies
(In percent)Banks' Foreign Denominated Debt Liabilities
(In billions of NOK)

Source: Bank for International Settlements, Bloomberg, Finanstilsynet, Norges Bank, Oslo Bors, and Statbank Norway.

33. Banks issue senior unsecured bonds to complement their longer-term market-based funding. The relevance of senior unsecured bonds as a funding instrument has continuously decreased and been substituted by the issuance of covered bonds. Issuance amounts have increased slightly recently but overall been rather stable since 2011; a slightly increasing share is issued abroad, mainly in Europe. Liquidity conditions are rather stable. The spectrum of investors is very stable and contains predominantly real-money investors, i.e., asset managers, pension funds and life insurers, but also foreign investors.

E. Regulation Related to Liquidity Risk

34. The Norwegian liquidity regulation essentially mirrors the EU legislation for credit institutions, which entered into force in the EU in January 2014. Banks' total LCR levels are stable and range above the 100 percent minimum. U.S. dollar LCR and euro LCR are more volatile, though at higher absolute levels. The FSA monitors on a monthly basis institutions' compliance with LCR requirements (off-site, regular reporting based on EU-framework). In Norway, LCR requirements encompass:

- LCR-total (all currencies): a minimum requirement of 100 percent applies; applicable since December 31, 2015 with a step-up plan over two years, similar to the one of the EU,

(70 percent in 2016 and 80 percent in 2017) and 100 percent since year-end 2017; for systemically important financial institutions (SIFIs) 100 percent has been the minimum requirement since December 31, 2015.

- LCR-NOK (local currency): a minimum requirement of 50 percent applies, if institutions have EUR or USD or both as significant currency; for other institutions, no formal minimum requirement applies, however the FSA expects financial institution's LCR-NOK to be close to their LCR-total; the minimum requirements have been in force since September 30, 2017.
- LCR in other significant currencies than NOK: a minimum requirement of 100 percent applies; this requirement is in place since September 30, 2017, although for the non-SIFIs the minimum requirement was 80 percent from September 20 to December 31, 2017 to correspond to the step-up-plan for the LCR-total.

35. The NSFR is a reporting requirement. Financial institutions are required to report NSFR information (all currencies and per significant currency) on a quarterly basis. Currently, no minimum requirement is applied. Institutions report NSFR information on a quarterly basis. Banks' NSFR levels follow a slightly increasing trend since 2014.

36. Banks' investment decisions and liquidity portfolio holdings are also driven by liquidity regulation and related requirements to meet the LCR. International issuers with zero risk weight, government bonds and covered bonds play a dominant role in banks' HQLA portfolios. The small size of government bond market pushes banks into covered bonds, and as a result, the FSA is closely monitoring the use of covered bonds and issues related to concentration in HQLA portfolios (at asset class level and at issuer level).

37. The NOK LCR requirement may at times contribute to heightened volatility in Nibor rates at quarter and year end or during episodes with increased structural liquidity swings. Large banks may at times be close to the 50 percent limit and large outflows from banks' accounts to the government account held at Norges Bank may trigger structural liquidity shocks. In such case, the interbank market is not suitable to adequately manage the LCR ratio, given that interbank transactions generally come with maturities below 30 days. As a result, multiple banks may be forced to borrow in the FX swap market to lend at maturities beyond 30 days and Nibor rates (usually based on panel bank estimates) increase, as well.

38. The Securities Fund Act regulates the organization and scope of mutual funds and fund management companies in Norway. The FSA is responsible for supervising in order to ensure companies operate in compliance with legislation. All Norwegian mutual funds are subject to approval by the FSA. Measures are in place that mitigate liquidity risk, including limits on leveraging, requirements on diversification, and valuation is based on fair values.

39. With assets under management amounting to NOK 1.129 billion, representing 32 percent of GDP, the mutual fund sector is comparatively small. Equity funds hold the largest share (53 percent), bond funds (27 percent) and money market funds (9 percent). As a result, the mutual fund sector currently appears to pose little systemic liquidity risk. Vulnerabilities are

contained given the size and structure of the Norwegian mutual fund sector, and the regulatory regime, which further limits liquidity risk. However, monitoring of this sector remains relevant given that liquidity risk has increased at mutual funds with a fixed-income focus, potentially triggered by large-scale redemption during stress.

NORGES BANK'S LIQUIDITY MANAGEMENT

A. Normal Times: Norges Bank's Standard Operational Framework

40. The Regulation on Monetary Policy of March 2, 2018 defines and specifies Norges Bank's inflation targeting policy regime. The recently updated Regulation formulates the objective that monetary policy shall maintain monetary stability by keeping inflation low and stable; the operational target Norges Bank aims at in interest rate setting is inflation close to two percent over time; inflation targeting should be forward looking and flexible so that it can contribute to high and stable output and employment, and to counteracting financial imbalances.

41. The correlation between the policy rate (sight deposit rate) and the NOWA rate is overall rather high. However, regularly observable spikes in the operational target (NOWA rate) at quarter or year-end reduce correlation. All segments of the Norwegian money market correlate overall well with Norges Bank's key policy rate (i.e., the interest rate on banks' overnight sight deposits, the sight deposit rate). Changes in Norges Bank's policy rate feed through to all relevant money market instruments, from rates in the unsecured money market to FX swaps, repos, and the Nibor rates. However, the spreads of the various money market instruments over the expected policy rate do vary significantly, especially on shorter tenors, illustrated in particular via the spread of Nibor rates over the policy rate. Changes in money market spreads are usually tied to changes in banks' funding costs through the FX swap market, implying that FX swap market developments impact the local Nibor rate, as well.

42. The introduction of the quota system has supported the functioning of the money market. In 2011, Norges Bank introduced a quota system, which restricted the level of banks' (counterparties) reserves that are remunerated at the key policy rate; only reserves up to a predetermined quota are remunerated at the sight deposit rate, while additional reserves are remunerated at the reserve rate (1 percent below the sight deposit rate). The introduction of the quota system aimed at limiting the demand for central bank reserves, thereby providing incentives to participate in the interbank market. The quota system adapted the previous floor system, in which interest was paid on all deposits with Norges Bank, which led to a continuously growing level of reserves held with Norges Bank and poor redistribution of liquidity in the interbank market.

43. Quotas are assigned to all eligible counterparties and updated twice a year on the basis of their total assets. Based on total assets, banks are allocated to one of three groups. Banks in group 1 are DNB Bank ASA, NORDEA, Danske Bank, Handelsbanken, SEB (Oslofilialen) and Swedbank Norge, in group 2 are 15 mid-size banks, group 3 contains the remaining smaller 105 banks. A bank that quotes money market rates (i.e., a bank on the Nibor panel) and that in principle belongs to group 2 will be moved to group 1 when the bank's quota is to be set. Group 2 applies for

banks with an ordinary account in Norges Bank's settlement system (NBO) that are not in Group 1.²¹ The sum of all quotas (of currently NOK 45 billion) is slightly above the targeted level of reserves (of NOK 35 billion, +/- 5 billion).

44. The high amount and increasing volatility of structural liquidity pose a challenge to liquidity forecasting and calibration of Norges Bank's open market operations. Structural liquidity conditions are strongly influenced by government transactions,²² requiring Norges Bank to conduct both liquidity providing and absorbing operations to sterilize government transactions. Efforts have been undertaken in the past to reduce volatility of transactions, e.g. through the increase of tax payment dates. Transactions linked to the Government Pension Fund Global (GPF) represent a comparatively small and stable component; the issuance or maturity of government securities may have substantive impact on structural liquidity, however associated risks and forecasting errors are comparatively small, as the debt management strategy of the MoF is transparent.

45. Liquidity forecasting is based on information exchange between Norges Bank and the Ministries which is conducted regularly, however on an informal basis only. Norges Bank receives on a regular basis information on government transactions from the relevant Ministries and other general government entities and the issuance of government securities, provided by government debt management are in Norges Bank. No formal procedures are in place that would formalize the timing, form and scope of information exchange between Norges Bank, the Ministry of Finance, other Ministries and other general government entities that would allow for a more timely exchange of liquidity forecasting-related information between the involved entities. Norges Bank publishes the forecast for structural liquidity two times a week on their website.

46. Norges Bank's steers bank reserves mainly through the use of F-loans and F-deposits. F-deposits and F-loans are used at a high frequency to provide liquidity insurance to the system by reducing and increasing the quantity of reserves in the Norwegian banking system; the maturity may vary depending on expected structural liquidity developments. Both F-loans, and F-deposits have a floating interest rate that is normally determined by multi-price auction. Complementing instruments exist in the form of standing facilities, i.e., overnight D-loans and deposits at the reserve rate, and fine-tuning operations, undertaken late in the day in case reserves will deviate from the desired level, due to forecast errors from Norges Bank.

²¹ Settlement banks will be assigned an additional quota determined by the size of the settlement bank in relation to the size of the second-tier banks (or equivalent banks) for which it performs settlements (as measured by total assets). Transition from one group to another does not occur often. In terms of total assets, the discrepancies within group 1, 2, and 3 are respectively 1,8 billion NOK, 179 million NOK and 81 million NOK.

²² Government transactions include value-added tax (VAT), other tax payments, disbursements from the labor and welfare administration, disbursements to local authorities, oil tax payments, and other payments).

47. Amendments to the operational framework improved further its effectiveness.²³ In concrete, these measures aim at mitigating risks of liquidity freezes associated with at times large swings in structural liquidity and reduced money market liquidity at quarter or year end.

- **Market operations at quarter-end and year end:** Norges Bank provides additional F-loans at the last trading date of each quarter at fixed rate, full allotment, with a maturity of three month (loans mature at the first trading day of the following quarter) and are priced at the key policy rate +15 basis points; these loans provide a backstop on days in which interbank liquidity may be very limited;
- **Change of settlement date for some F-loans:** Norges Bank changed auction and settlement dates for selected F-loans auctioned at days with strong declines in structural liquidity; on such days, F-loan auctions will be settled two business days after the auction day (t+2); this measure reduces operational and financial risks associated with the banks' liquidity management and collateral mobilization;
- **Change to floating interest rate for Norges Bank market operations:** Norges Bank conducts market operations at a "floating interest rate", implying that allotted interest rates can be adjusted for operations that span monetary policy meetings; if the key policy rate is changed during the maturity of the operation, banks' allotment rate will change accordingly; this measure should improve liquidity management and reduce the risk of underbidding or overbidding connected to expected key policy rate adjustments;

48. The counterparty framework is broad, allowing a wide set of banks to access Norges Bank open market operations (OMOs). Pursuant to the Norges Bank Act, Norges Bank may accept deposits from and extend loans to monetary policy counterparties and other counterparties on terms and conditions determined by Norges Bank. Eligible counterparties are:

- Commercial banks and savings banks headquartered in Norway;
- Branches in Norway of banks and credit institutions headquartered in another state;
- Banks and other credit institutions that are permitted to market and provide services in Norway from a commercial presence in another EEA state (cross-border services); and
- On a case-by-case basis, limited access²⁴ is provided to credit institutions that provide cross-border services in Norway from state outside the EEA.

²³ More generally, and on a forward-looking basis, Norges Bank has specified in its Strategy for 2017–2019, that it will establish general principles for liquidity policy; the establishment of such principles constitutes one out of several action points in the area of monetary policy innovation.

²⁴ All Banks headquartered in Norway and branches of foreign banks have access to sight deposit accounts, standing facilities, intraday loans and can participate in market operations. In contrast, cross border operating banks only have access to intraday loans and deposits but are not allowed to participate in market operations or place sight deposits overnight.

49. The collateral framework is broad and contains a wide set of assets, both in domestic and foreign currencies. It includes bonds, notes and short-term papers, units of bonds and money market funds, fixed deposits in Norges Bank, and deposits in other central banks.²⁵ The detailed rules and guidelines for accepting collateral are regulated and published via the Guidelines for pledging collateral and specify eligibility criteria on the type and category of securities to be accepted, currency requirements, country of issuance, listing requirements, minimum credit rating, or outstanding volume of the security and lay out the set of applicable risk control measures (haircuts depending on asset category, interest type and time to maturity) and valuation procedures.

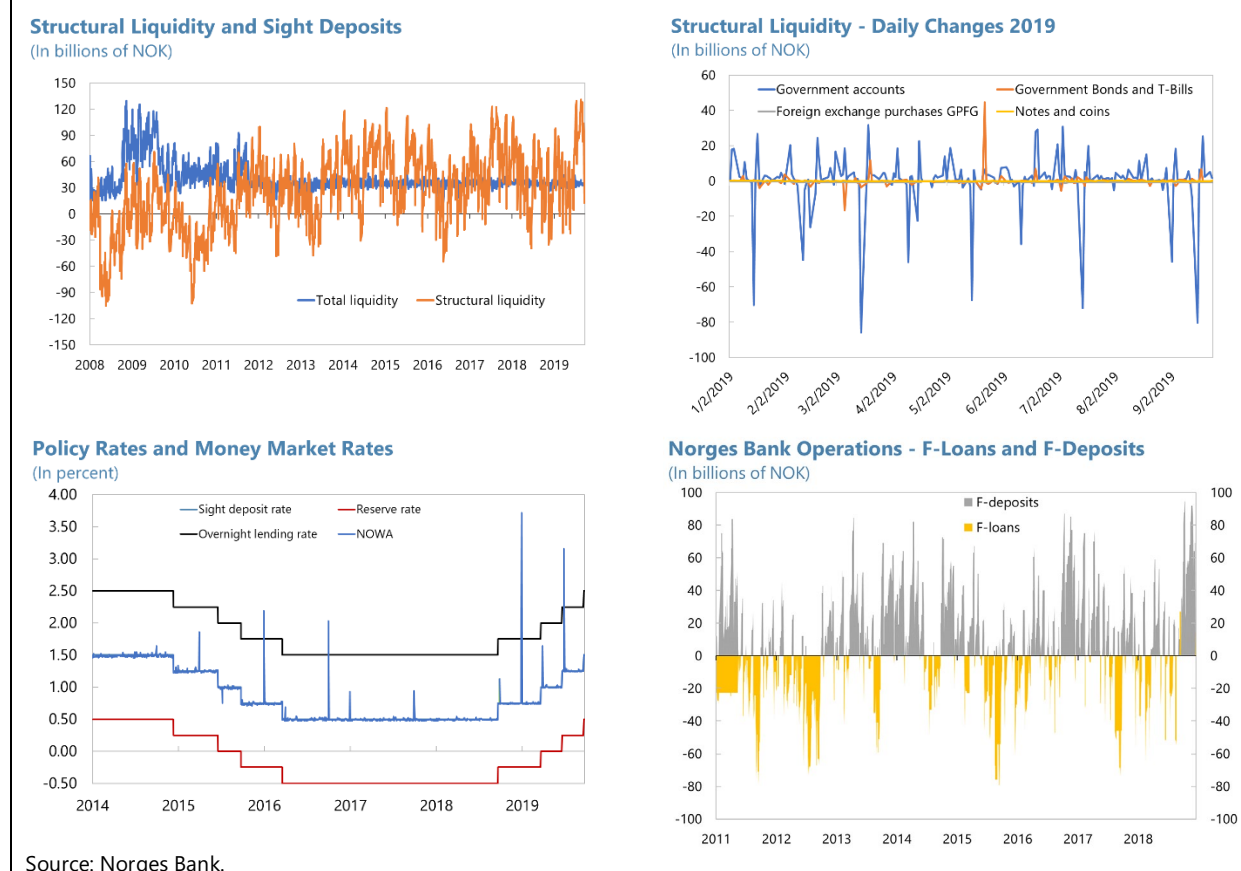
50. Collateral valuation is based on price information from various sources and Norges Bank applies theoretical pricing in case adequate market prices are not available. The collateral management system gives priority to market prices from different market sources. In case adequate market prices are not available, i.e., older than 21 business days, Norges Bank calculates and applies a theoretical price for NOK denominated securities or—in case of foreign denominated securities—applies a price based on the nominal amount with deduction of an extra haircut. Recent observations show that around 30 percent of mobilized eligible securities have a theoretically determined price. Pricing based on the nominal amount is applied only rarely, i.e., for approximately two percent of eligible securities.

51. Norges Bank monitors on an aggregate level the developments on collateral and publishes²⁶ information on aggregate amounts of collateral mobilized.²⁷ More detailed information and analyses is lacking on the use (as collateral) of individual asset classes. Information on the overall universe of eligible collateral appears to be incomplete (and providing for a conservative estimate, only), as the list of eligible assets published on Norges Bank's website contains only assets that have been assessed positively by Norges Bank. Only limited information is available on the amounts of collateral available to counterparties.

²⁵ The Scandinavian cash pool is an automated system for the pledging of cross-border collateral between Denmark, Norway and Sweden. The system was developed in order to facilitate the Scandinavian CLS participants' access to intraday liquidity in the Scandinavian currencies.

²⁶ See [Norges Bank regular reports](#) (only in Norwegian) containing aggregate information on recourse to Norges Bank credit and amounts of collateral mobilized.

²⁷ Norges Bank operates a collateral pooling system (as opposed to earmarking) which reduces operational risks associated with sudden and large liquidity swings. The system allows counterparties to pre-deposit collateral independent of the start of an individual credit operation (in contrast to earmarking, which requires that collateral is directly linked to each individual credit operation).

Figure 3. Norway: Key Rates and Liquidity Conditions

B. Norges Bank's Approach to Provide Liquidity in Times of Stress

52. Liquidity stress events can be distinguished by type of event—idiosyncratic or systemic—and whether stress is in domestic or foreign currency (Table 4). Idiosyncratic events are dealt with through traditional lender of last resort actions—or Emergency Liquidity Assistance (ELA)—whereas general disruptions to the pricing and distribution of liquidity across the financial sector including in securities markets, require a different approach and set of responses.

53. The Norges Bank Act of 1985 provides the central bank with a sound legal basis to perform its lender-of-last-resort (LOLR) function and to provide liquidity support in different forms. Norges Bank can provide liquidity support in domestic and foreign currency. Eligible institutions include both banks and nonbank financial institutions (NBFIs).

54. Norges Bank has published concrete guidelines for applying for ELA (“credit on special terms”). These guidelines specify in detail the information to be provided by the requesting institution, including information on profit and loss and capital adequacy calculations, forecasts on income and capital adequacy, a plan for recapitalization of the bank, liquidity reports, liquidity buffers, information on funding, mark-to-market values of securities portfolios and off-balance sheet portfolios, impairment of loans and other claims.

Table 4. Norway: Liquidity Events and Instruments

	Idiosyncratic—ELA	Systemic
Norwegian Kroner	Norges Bank: Financial institutions—ELA policy	Institutions Norges Bank: F-loans with expanded maturities and/or against a broadened set of collateral and/or at rate terms deviating from standard market operations, D-loans against broadened set of collateral
		Markets 2008–2014 Ministry of Finance: Direct support to securities markets: e.g., via asset swap (Norges Bank with operating role).
Foreign Currency	Norges Bank: Norges Bank Act provides for capacity to provide ELA in foreign exchange	Norges Bank: Foreign exchange swaps (e.g., in euro and U.S. dollar). Norges Bank: Foreign currency loans (e.g., in euro and U.S. dollar).
Source: IMF Staff.		

55. Norges Bank provides ELA only to domestic financial institutions and subsidiaries of foreign institutions. In contrast, Norges Bank is explicit that a branch of a foreign bank will not be considered eligible. A Memorandum of Understanding (MoU) between the Nordic-Baltic countries' central banks²⁸ (see its section 5.4 (a)) specifies that an ELA request should be submitted to the home central bank (i.e., the central bank in which the requesting bank is domiciled). Recent Norges Bank communication²⁹ clarified that also banks in resolution may be considered eligible for ELA. In turn, branches (of Norwegian institutions) established and operating in other EEA countries would request ELA with Norges Bank.

56. Norges Bank has in place an internal framework that outlines roles, responsibilities and procedures for the assessment and provision of bilateral ELA. Upon an ELA request, Norges Bank will inform both the Financial Supervisory Authority as well as the Ministry of Finance that an application has been received. Norges Bank's Executive Board or the Governor according to the general mandate granted the governor by the Board, makes the decision on granting a bank ELA

²⁸ See "Memorandum of Understanding on Cooperation regarding Banks with Cross-Border Establishments between the Central Banks of Denmark, Estonia, Finland, Iceland, Latvia, Lithuania, Norway, and Sweden", December 2016.

²⁹ See "Liquidity and funding for banks under resolution" speech by T. Hægeland, Executive Director of Norges Bank Financial Stability at Finance Norway's seminar on recovery and resolution rules, September 12, 2019.

and the parameters³⁰ applied. Such decision also includes the forward-looking assessment and judgment on the solvency of the requesting bank, performed by the FSA.

57. The capacity to accept non-standard collateral is currently somewhat constrained, as a framework to accept loans or loan portfolios has still to be tested with counterparties. Recent amendments to the Financial Collateral Act now allow Norges Bank to also accept mortgage loan portfolios as collateral, which would substantially broaden the collateral base. Norges Bank has initiated and is at an early stage of conducting preparatory work to facilitate the assessment, valuation and mobilization of portfolios of non-defaulted residential mortgage loans. Norges Bank envisages to collaborate with representatives of Finance Norway and with selected domestic banks. The preparation foresees tests related to the transfer of mortgage loan portfolio information and the timely processing of this information by Norges Bank.

58. In January 2019, a crisis simulation exercise between the Nordic-Baltic central banks, supervisors, resolution authorities and relevant ministries took place. Norges Bank participated in this exercise to a limited extent and simulated the provision of Norwegian kroner in a swap arrangement with the Central Bank of Denmark, for the latter to provide ELA in Norwegian kroner to a large Danish bank with a branch in Norway considered systemically important for the Norwegian financial system.

59. Norges Bank has a well-established system in place to monitor liquidity conditions in short-term domestic and foreign currency funding markets. Norges Bank conducts monitoring through contact with the issuing banks, investors and by collecting data by conducting a monthly Liquidity Survey. The six largest Norwegian banks participate in the survey which includes volumes and prices for all CP and CD issues (only the largest bank) and the issuing banks qualitative judgment of market conditions. An internal coordination group (chaired by Financial Stability Department) exists with representatives of the Monetary Policy, Financial Stability and Market Operations Departments that reports on developments in funding and liquidity conditions to Norges Bank's Executive Board at least once a year.

60. Norges Bank, FSA and the MoF exchange information on relevant market conditions. Norges Bank and FSA hold 8–9 bilateral meetings per year and exchange complementing information on the liquidity and funding situation of Norwegian financial institutions. In this context, Norges Bank and FSA have developed a method for stress testing of liquidity risk in individual institutions. In addition, Norges Bank, the FSA and the MoF conduct triparty meetings at least twice a year to exchange information on market developments and liquidity conditions with impact on financial stability.

61. Inter-agency arrangements seem to be limited to an exchange of information and are less clear with regard to roles and responsibilities for the actual implementation of market support. The covered bond swap arrangement was provided by the government, with Norges Bank assuming the role of administering the individual swap arrangements with participating

³⁰ Parameters include in particular the duration of the loan, the interest rate applied, accepted collateral and related risk control and valuation measures.

counterparties. Aspects of decision-making, accountability, coordination of liquidity support measures, or roles and responsibilities of each individual institution ahead or during such support appear not to be specified further. It is expected that such liquidity support measures would be specified on an ad hoc basis.

62. Norges Bank is able to expand its standard operational framework and to provide expanded liquidity support in times of market-wide stress and has done so in the past. During the GFC, Norges Bank introduced or administered several complementing measures to provide extraordinary liquidity.

- Norges Bank administered on behalf of the government the swap arrangement under which domestic banks could swap covered bonds against government securities;
- Norges Bank introduced F-loans (fixed rate loans) with extended maturities of three years, particularly designed to support the funding of smaller domestic banks;
- Norges Bank temporarily widened its collateral framework to increase banks' access to central bank liquidity and suspended ratings requirements, accepted bank's claims on mortgage companies issuing covered bonds and accepted a subset of previously ineligible units in Norwegian money market funds.

63. Norges Bank has the legal basis and capacity to provide ELA also in foreign currency. Notably, Norges Bank expects that the provision of ELA in foreign currency is provided in very rare circumstances, only. In case a financial institution is experiencing liquidity problems with obtaining foreign-currency funding, it is assumed that the financial institution to the extent possible can borrow Norwegian kroner from Norges Bank through the ELA arrangements and then swap the Norwegian kroner into the desired currency. In addition, the majority of financial institutions' assets is currently denominated in NOK, thus limiting the need for (corresponding) funding in foreign currency.

64. Norges Bank has in place an operational framework that allows for the idiosyncratic and system-wide provision of liquidity to institutions in foreign currency. Foreign exchange swaps and foreign currency loans form a part of Norges Bank's operational framework which can be activated in case of liquidity stress:

- **Foreign exchange swaps** are available to complement existing liquidity providing operations via F-loans and provide supply of liquidity in foreign currency at different maturities. This instrument may also be made available to a broadened set of counterparties, which normally would not have access to Norges Bank's standard operations. During the 2008–09 financial crisis, Norges Bank provided foreign exchange swaps at different maturities (of up to three months) in U.S. dollar (US\$26.9 billion) and in euro (EUR 9.9 billion) to its counterparties.
- **Foreign currency loans** can be provided to domestic banks against collateral and at different maturities. This instrument complements foreign exchange swaps as it does not directly affect kroner liquidity in the interbank market. During the 2008–09 financial crisis, Norges Bank

provided collateralized foreign currency loans at different maturities (up to three months) in U.S. dollar (US\$27.0 billion) to its counterparties.

65. The provision of foreign currency funding is—whether in the form of idiosyncratic or system-wide liquidity support—contingent upon access to foreign-currency funding. Norges Bank's ability to respond is determined by the level of Norges Bank's foreign reserves and its access to foreign currency swap lines with foreign central banks:

- **Norges Bank foreign exchange reserves are to be available³¹ as part of the conduct of monetary policy, to promote and maintain financial stability and to meet Norges Bank's international commitments.** Foreign exchange reserves available for such transactions are sizable and encompass an equity portfolio and a fixed income portfolio, with an aggregate market value of currently NOK 517.3 billion (13.7 percent of GDP). The portfolio is managed based on principles for management of the foreign exchange reserves, as defined by Norges Bank's Executive Board, specifying the investment universe and benchmark indexes for the equity and fixed income portfolios. The fixed income portfolio is managed by Norges Bank's Market Operations Department and represents 80 percent of the portfolio and is invested in cash deposits and Treasury bills and sovereign bonds issued by France, Germany, Japan, the United Kingdom (U.K.) and the U.S. Half of the fixed income portfolio is invested in U.S. dollar, 34 percent in euro, British pound and Japanese yen each represent a share of 8 percent in this portfolio. The equity portfolio contains liquid equities listed on a regulated and recognized exchange.
- **During the crisis (September 2008), Norges Bank has entered into bilateral currency swap agreement with the U.S. Federal Reserve.** At that time central banks³² entered into and announced swap arrangements with the U.S. Federal Reserve established to address continued pressures in global U.S. dollar funding markets. This arrangement is currently inactive and no other swap arrangements exist.

KEY ISSUES OF RELEVANCE TO SYSTEMIC LIQUIDITY

A. Does Banks' Reliance on Market Funding Pose Systemic Liquidity Risks?

66. The government bond market is small compared to other European peers and has limited capacity as a safe haven in case participants want to sell-off credit risk in a downturn. The small size of government bond market impacts also secondary market liquidity, which is perceived to be rather sensitive to market volatility. The market fulfils the envisaged function as the

³¹ Of note, the Norges Bank has not intervened in the FX market to support the Norwegian Kroner since 1999. FX transactions conducted by Norges Bank refer to spot market transactions on behalf of the Norwegian government for the petroleum buffer portfolio, which is separated from the foreign exchange portfolio. This portfolio is invested in short-term fixed income instruments.

³² These central banks included Reserve Bank of Australia, Banco Central do Brasil, Bank of Canada, Danmarks Nationalbank, Bank of England, European Central Bank, Bank of Korea, Banco de Mexico, Reserve Bank of New Zealand, Norges Bank, Monetary Authority of Singapore, Sveriges Riksbank, Swiss National Bank, and Bank of Japan.

provider of a benchmark curve not to its full extent, given the limited set of maturities and limited availability to domestic investors.

67. Norwegian banks' continued high reliance on market-based funding may pose a risk to financial stability and systemic liquidity conditions. While such reliance exposes banks to investor sentiment, risks are aggravated further due to the large amounts of banks' cross holdings. Domestic banks represent the most important investor class for domestic covered bonds and shocks in the housing market—e.g., a broad-based and sharp decline in house prices—would ultimately impair the functioning and liquidity of covered bond markets. The high level of interconnectedness may trigger a broad-based increase banks' funding costs or ultimately require deleveraging.

68. Notably, covered bonds provide for a long-term funding instrument with comparatively low credit risk. Covered bonds have partially substituted other riskier sources of wholesale funding, such as senior unsecured funding and short-term wholesale funding. This should support the stability of bank funding and positively contribute to financial stability. Credit risks are comparatively low due to the legal requirements with regard to the credit quality of underlying mortgage loans and the credit quality of the Norwegian banks.

69. FSA's and Norges Bank's monitoring of the LCR requirements should take into account also 'side effects' and interaction with bond market and money market activity. Banks' covered bond investments are also driven by LCR requirements and the limited availability of government bonds requires investment in other HQLA financial instruments and covered bonds in particular. A close monitoring of HQLA portfolios composition remains crucial, as contemplated by Norges Bank and the FSA. The LCR requirement in domestic currency can ultimately influence conditions in money markets and assumes a functioning FX swap market. It is therefore crucial to continue monitoring the interaction between money market functioning and liquidity regulation in this context. It is noted that increasing further the requirement on LCR in domestic currency (currently at 50 percent) would at the current juncture likely increase banks' reliance on covered bonds even further, thereby increasing cross holdings of covered bonds and concentration issues and possibly negatively impacting secondary market liquidity.

70. Banks' reliance on foreign investors contributes to diversification of investor base, however, makes issuers vulnerable to foreign investor sentiment. In particular some large Norwegian banks strongly rely on both short-term and long-term market-based funding in FX. Generally, funding conditions in FX appear stable at this stage. In the short-term segment funding stress in U.S. dollar and in euro (observable during the GFC) has been muted and Norwegian banks' high credit quality (ratings) currently support access to FX funding markets. The rising share of covered bond funding in the euro area however makes covered bond issuers susceptible to shocks in demand.

71. Regulatory developments such as the Bank Recovery and Resolution Directive (BRRD) and the EU securitization regulation may impact the universe of financial instruments in Norway. It remains to be seen to what extent senior nonpreferred bonds will substitute or possibly replace senior unsecured bank bonds. The forthcoming introduction of the EU securitization

regulation could facilitate legally and operationally³³ the securitization of a broadened range of cash flow generating assets (including e.g., credit card receivables, residential mortgages, or car loans) in the Norwegian market.

72. The FSA should continue ongoing efforts to complete the transition towards a Nibor benchmark in line with the BMR to ensure market integrity. The FSA should complete the authorization process to ensure a swift transition towards a renewed Nibor reference rate. Despite methodological changes, Nibor is expected to continue to be determined to a large extent based on panel banks' estimates, not transactions, which remains a weakness, as is the case in other countries. NoRe as administrator should therefore ensure that panel banks' estimation process (waterfall) is transparent and comprehensible.

B. Are Foreign Exchange Markets Functioning?

73. FX swap markets function well and the trading activity in FX swap markets is usually very resilient during times of stress. Structural features such as the central clearing of FX swap transactions via LCH Clearnet reduce counterparty risk and are supportive of financial stability. In particular the short-term (overnight) FX swap contracts are perceived to be rather liquid and resilient, with high turnover and a high number of active counterparties domestically and abroad (London, New York). The FX spot market in contrast is less resilient. Market activity is concentrated and only a small number of domestic and Nordic counterparties are active in this segment, so liquidity in the FX spot market may be scarce at times.

74. The cross-currency basis swap market has gained importance and is crucial to hedge FX exposures associated with the issuance of FX denominated covered bonds. The market segment is comparatively small, with lower turnover and a smaller number of counterparties. However, it revealed to be comparatively resilient during recent episodes of market stress. The growing issuance volumes of FX denominated covered bonds suggest that the increasing demand for cross currency hedging in a very specific maturity bucket requires to be met by adequate supply. Going forward, hedging could become more expensive, and/or come along with increased counterparty risk, though this is contained due to limits on counterparty exposures and one-way margining in covered bond legislation. In addition, structural weaknesses of the market in which transactions are conducted bilaterally (without the involvement of a clearing agent) increase financial stability risks.

C. Can the Standard Operational Framework Manage Challenging Liquidity Conditions?

75. Norges Bank's operational framework works well overall. Norges Bank is able to manage the challenging structural liquidity conditions. Liquidity forecasting and the regular conduction of open market operations, at times at large amounts, provide for an overall effective

³³ Current law requires explicit consent of the debtor to transfer of a loan to a SPV, which makes the valid legal transfer of cash-flow generating assets to the SPV impossible.

operational framework and transmission of policy signals, as expressed by a high level of correlation of the policy rate and short-term money market rates.

76. Large swings in structural liquidity pose a risk for market functioning if Norges Bank fails to counteract fluctuations in structural liquidity. The previous floor system (without quotas) posed comparatively lower requirements to Norges Bank to forecast liquidity and was connected with lower amounts and frequencies of open market operations. At this stage, it appears that size and variability of government flows could not be reduced through policy changes. Reserve balances fulfil different functions as (a) a building block of the operational framework, aiming at steering money market interest rates, (b) a tool to support money market activity, and (c) a liquidity buffer under the LCR-regime, insulating the domestic system from offshore or domestic shocks. In this context, the current set up is considered adequate to strike a proper balance between these objectives. It is noted that the operational risks associated with F-loan operations are mitigated to a large extent as under the pooling system counterparties have generally pre-deposited sufficient amounts of eligible assets that could be used as collateral for F-loans.

77. Banks' unwillingness to lend at quarter and year end hampers market functioning and create market frictions around these dates. Norges Bank has introduced dedicated facilities that provide a liquidity backstop around these dates which should limit risks associated to market freezes. However, banks' behavior appears to be driven in particular by capital and leverage ratio requirements³⁴ which have to be met at quarter and year end. In addition, banks' contributions to the deposit insurance fund are determined based on the balance sheet size at quarter and year end.

78. The FSA should assess whether regulatory ratios and contributions could be determined based on "averaging" i.e., the average size of the balance sheet over a predefined period. Such approach may take into account more adequately the interaction between regulation, policy implementation and market functioning and could possibly "iron-out" unintended side-effects of regulation to market functioning without impairing the effectiveness of regulatory measures. On such basis, Norges Bank may reassess the conduct and calibration of its F-loan operations over quarter- and year end.

79. Information about Norges Bank's collateral framework's interaction with liquidity regulation is somewhat limited. This may negatively impact efficiency and effectiveness of monetary policy implementation and liquidity regulation. The current broad collateral framework provides for overall sufficient amounts of collateral; however, limited information seems to be monitored and analyzed regarding the amounts of eligible collateral issued (domestically and abroad), eligible collateral available to counterparties, the types of assets mobilized as collateral, and related developments over time. Such analyses may provide insights in several areas:

- Norges Bank's risk taking in connection with liquidity provision and its exposure to individual sectors or regions;

³⁴ Banks are reluctant to lend, thereby expanding their balance sheet, and instead prefer to shorten their balance sheet to the extent possible.

- the overall use of individual assets as collateral and its impact on secondary market liquidity;
- the aggregate and individual levels of unencumbered assets³⁵ eligible as collateral; this should serve as a good indicator on the quantitative impact and effectiveness of individual collateral measures, e.g., in case the need for a further broadening of the framework arises;
- the interaction between monetary policy implementation and liquidity regulation and banks' availability and use of HQLA to meet LCR requirements.

D. Has Norges Bank the Capacity to Provide Liquidity in Times of Stress

Market-Wide Liquidity Support

80. With its well-established and tested framework, Norges Bank is prepared to provide market-wide liquidity support to eligible institutions. The standard operational framework and its components are adaptable and scalable to potentially expand amounts and maturity of liquidity provision to a broader set of counterparties, and/or against a somewhat widened set of eligible collateral. In case of need, Norges Bank could rely on facilities and procedures it has activated during the financial crisis in 2008–09. Procedures, as well as roles and responsibilities of involved Norges Bank business areas are specified and documented.

81. It is uncertain how stress in securities markets will be dealt with which calls for clarity about the responsibility for monitoring securities markets and a framework for intervention.³⁶ Further coordination with the MoF and the FSA is needed to ensure that market support is prepared and conducted in an effective manner. It is noted that Norges Bank is monitoring closely the relevant funding markets, which would inform market intervention. However, more detailed consideration should be given to developing further and complete a framework for intervention in securities markets. Such framework should incorporate the following elements:

- Articulating the objectives of interventions, related mainly to preserving financial stability;
- Identifying the markets that are assessed as most important for preserving financial stability;
- Identifying the potential triggers for intervention;
- Establishing principles for the design of programs;
- Defining roles among involved authorities with regard to program design, risk taking, operation, communication, and exit strategy; and

³⁵ "Unencumbered assets" include eligible assets available (on balance sheet) to counterparties, which have not been mobilized as collateral. Discrepancies between amounts of eligible collateral and available collateral may be substantial, given the comparatively large and increasing role of foreign investors.

³⁶ See King and others (2017), "Central Bank Emergency Support for Securities Markets" ([IMF WP No. 17/152](#)).

- Addressing other issues related to implementation, such as coordination with other crisis management actions.

Bilateral Liquidity Support

82. Further work may be needed on preparedness to provide ELA. The Nordic crisis simulation exercise and the envisaged tests related to the mobilization of loan portfolios as ELA collateral provide a good starting point to test and subsequently establish reliable procedures that can be applied in crisis time. Further tests can be undertaken, and their scope widened to improve further operational preparedness of all parties involved.³⁷

- **Involvement of Norges Bank counterparties:** Norges Bank may want to conduct such tests with domestic systemically important banks (D-SIBs) and also selected mid-sized banks to simulate procedural aspects of an ELA assessment and its provision (“pre-positioning”).
- **Simulating procedures related to the assessment of the ELA request:** Norges Bank and involved counterparties could simulate the ELA request and the provision of information as requested by Norges Bank and its assessment by involved Norges Bank business areas and the FSA; such interaction of business areas should include a solvency and viability assessment, the determination of ELA parameters (amount, duration, applicable interest rate, other conditions) and related decision making.
- **Simulating procedures related to the mobilization of non-standard ELA collateral:** as foreseen by Norges Bank, such simulation should include mobilization and legal transfer of non-standard ELA collateral (such assets could include e.g., mortgage loan portfolios, or equities), collateral eligibility assessment by Norges Bank, and the pricing and haircut determination of such collateral.

83. There is a risk that ELA provision may be impaired by the operational inability to accept bank loans, or portfolios thereof, as collateral. Norges Bank’s capacity to accept mortgage loan portfolios is currently constrained mainly because rules and procedures have not yet been tested with counterparties. Norges Bank should continue the initiated preparatory work on the acceptance of mortgage loan portfolios; this would further improve the ELA framework. Such framework should cover the following strongly interrelated elements:

- Rules about the legal transfer of eligible loans or loan portfolios;
- Eligibility criteria and minimum requirements at individual loan-level: in particular credit quality, loan size, maturity, amortization schedules, underlying collateral (residential mortgages), place of establishment of the debtor;

³⁷ Notably, such tests should not violate the core principle that ELA is provided as full discretion of Norges Bank. Participating financial institutions or financial market infrastructures (FMIs) should not assume that a successful participation in such tests leads to a right to receive ELA.

- Eligibility criteria and minimum requirements at portfolio level: in particular portfolio size, composition (homogeneity on underlying collateral, geographical distribution, debtor concentration), credit quality;
- Valuation and risk control measures: valuation methodology and frequency, determination of haircuts to mitigate financial risks, over-collateralization; and
- Procedural aspects: timely and accurate exchange of a predefined set of static information and required update frequencies (per loan and at portfolio level) with the counterparty in a predefined format.

84. Norges Bank should intensify monitoring the availability of ELA-eligible collateral, in particular for the D-SIBs and for medium size banks. An institution's access to central bank liquidity is ultimately constrained by the amount of eligible collateral it holds. A good understanding of ELA collateral available to banks (unencumbered) should feed into an early warning system ("horizon-scanning") that may indicate situations of liquidity stress at an early stage.

Liquidity Support in FX

85. Whereas international reserves are adequate in size and liquid, Norges Bank should continue international cooperation with other central banks to ensure that steps can be taken quickly in case of a severe financial crisis. Norwegian banks' exposure stemming from subsidiaries abroad is limited, however funding in euro is significant and in times of market stress, elevated demand for euro liquidity could emerge. The swap arrangement (reciprocal currency arrangement) with the Federal Reserve Bank of New York proved to be supportive during the global financial crisis. Norges Bank should continue cooperation with other relevant central banks to be ready to contribute swiftly to coordinated actions needed to address funding pressures.

Appendix I. Norwegian Covered Bonds

Market Overview

1. The Norwegian covered bond market has been growing continuously since 2007 (see chart below). At present, it contains 24 active issuers and the aggregated amount of covered bonds outstanding accounts for 1,258 billion NOK, representing 32 percent of GDP.¹ DNB Boligkreditt is by far the largest issuer, accounting for 37 percent of the total outstanding volume of Norwegian covered bonds, followed by SpareBank 1 Boligkreditt (19 percent), Eika Boligkreditt (7 percent) and Nordea Eiendoms-kreditt (7 percent).

2. The slight majority (54 percent) of covered bonds is issued abroad and in foreign currency. Issuances abroad cover mainly euro (48 percent), but also in U.S. dollar (4 percent) and other currencies (3 percent). Large discrepancies exist across individual issuers. The largest covered bond issuer has issued a share of 80 percent of its covered bonds in foreign currency. In contrast, most of the smaller issuers focus exclusively on NOK-denominated covered bonds.

3. The Norwegian covered bond market is smaller than peer markets in Denmark and Sweden. This holds true both in absolute terms (issuance volume) and relative to GDP. Norwegian issuers rely to a greater degree on euro funding than Swedish and Danish peers, reflecting the limited depth of the domestic market.

4. Covered bonds issued domestically usually come with a variable rate coupon and at maturities of up to 5 years. Covered bonds issued abroad have longer maturities, i.e., up to 10 years, and usually have a fixed rate coupon. The vast majority of Norwegian covered bonds are backed by residential mortgages and only a small share (<3 percent of outstanding volume) is backed by commercial mortgage loans.

Covered Bond Legal Framework

5. The Norwegian Covered Bond legislation entered into force on June 1, 2007. A new Norwegian Act on Financial Institutions came into force in January 2016, amending the previous legal framework.² The Norwegian legislation fulfils and is in compliance with the relevant EU legislation, i.e., the Capital Requirements Regulation (CRR). CRR encompasses specific criteria that covered bonds must fulfil in order for institutions investing in those bonds to be able to seek preferential risk weight treatment on their investment. Being CRR-compliant, Norwegian covered

¹ Of note, new issuance was exceptionally high in 2008 and 2009, during this period, the Norwegian government introduced an asset swap program according to which newly issued covered bonds could be swapped against T-bills. This facility was administered by Norges Bank. NOK 230 billion of covered bonds were exchanged in swap agreements with the government in 2008 and 2009. The last covered bond used in the swap agreement matured in June 2014.

² The changes entail that (a) covered bond issuers may not be declared bankrupt but will be placed under public administration, (b) lead to the introduction a mandatory minimum overcollateralization level, which has been set at two percent.

bonds are eligible for a reduced (10 percent) risk-weighting under the standard method for capital adequacy requirement. If denominated in euro, they are also eligible as collateral under Eurosystem rules and generally qualify as liquid assets under the Liquidity Coverage Ratio (LCR) regime. Notably, in April 2019 the European Parliament provisionally approved a new Covered Bond Directive, and finally approved it 27 November 2019, which is scheduled to enter into force by 8 July 2022. Upon a request from MoF, FSA prepared a letter to the MoF describing the rather few changes of the present covered bond legislation Norway necessary to comply with the new Directive. Furthermore, the letter suggests solutions for the national choices given in the Directive. A public hearing based on the letter is lasting until 17 August 2020.

Structure of the Issuer

6. In Norway, covered bonds can be issued by specialized credit institutions (mortgage companies) only. This differs from other legal frameworks in Europe and elsewhere where also commercial banks are allowed to issue covered bonds in their own name (see table with country comparison below). The majority (20) of issuers are subsidiaries of individual parent banks. A few issuers (5) are owned by groups of smaller banks.

7. The issuance by specialized institutions comes with the advantage that a bankruptcy of the parent entity might not necessarily extend to the specialized issuer.³ However, in case of mortgage company default, covered bond holders would normally not benefit from a claim on the mortgage company's parent. In addition, the issuer does normally not hold many assets outside the cover pools, as mortgage companies are not allowed to hold deposits, thus fund mortgage loans solely through the issuance of covered bonds.

Supervision

8. Norwegian issuers are subject to a specific supervisory regime involving both an independent inspector and the FSA, which appoints an independent cover pool inspector. The cover pool inspector monitors compliance with the cover register and asset coverage test on a quarterly basis and reports annually to the Norwegian FSA.

Cover Pool

9. In Norway, cover pools are dominated by residential mortgages, just a small share of issuers specializes on issuing covered bonds backed by commercial mortgages or public sector loans. Substitute assets may amount to a maximum of 20 percent of the cover pool (exemptions up to 30 percent may be granted by the FSA but has only been granted to one company during the aftermath of the 2008 financial crisis). Underlying assets are to be originated by the issuer and have to be located within the EEA or the Organization for Economic Co-operation and

³ The specialized issuer in such case may continue to operate as a solvent entity.

Development (OECD). In practice, cover pools of Norwegian covered bonds only marginally contain any nondomestic assets.

10. For residential mortgages, the loan-to-value (LTV) limit is set to 75 percent, while the limit is 60 percent for mortgages concerning holiday/leisure properties and commercial mortgages. The mortgage company is required to monitor the development of the LTV of the individual asset as well as the market of the underlying assets. Regular reporting and disclosure requirements are in place, enabling both the competent authority and covered bond investors to have access to information. Currently, LTV-levels of mortgage loans in cover pools are overall well below the 75 and 60 percent thresholds.

Asset Segregation

11. Asset segregation is secured through the cover register, which is managed by the issuer, containing details on cover pool assets, derivatives and covered bonds in issue. The assets in the cover pool remain with the estate in case the issuer is placed under public administration. Bondholders and derivative counterparties have exclusive, equal and proportionate claims. They will also have the same right to over-collateralization.

Asset-Liability Management

12. It includes a strict mark-to-market principle, whereby the value of the cover pool must at all times exceed the value of the preferential claim of covered bond holders. The recent amendment to covered bond legislation introduced a legally binding over-collateralization level of 2 percent. Rating agencies require a slightly higher level of over-collateralization (of 4 percent) for a AAA-rating level. Also, the maximum exposure to one single borrower is limited at 5 percent of the cover pool when running the coverage tests.

13. Issuers must establish limits on interest rate risks and are not allowed to take on any substantial FX risk. Cash flow matching requires the issuers to ensure that the payment flows from the cover pool enable them to honor their payment obligations towards holders of covered bonds and counterparties to derivative contracts at all times. The issuer has to perform stress tests on a regular basis to ensure an adequate liquidity reserve and value of the cover pool.

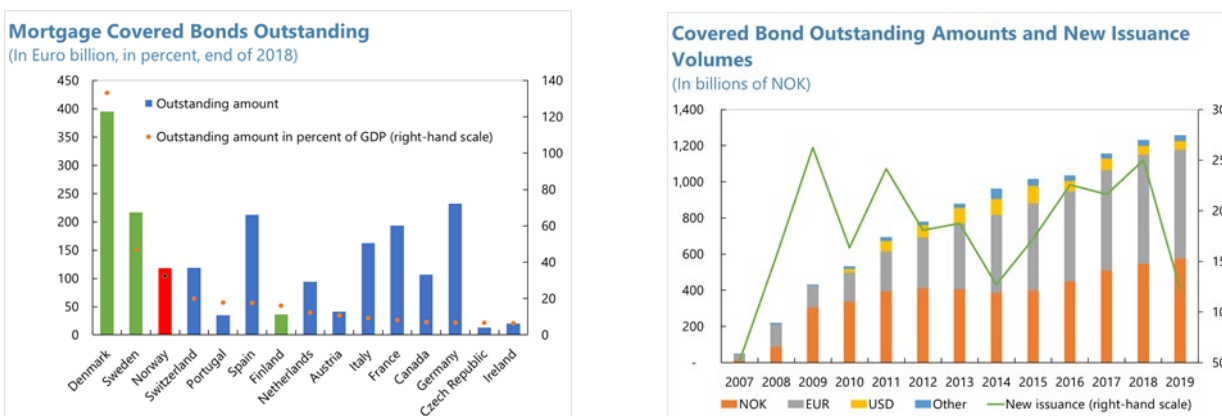
Insolvency of the Issuer

14. In such case, the mortgage company will be placed under public administration (it is not declared bankrupt). The covered bond program will be administered by either the bankruptcy administrator of the issuer or a public administrator appointed by the MoF. As a result, authorities should have an increased level of time to deal with the covered bond company and management of the cover pool. The administrator is empowered to take any action considered necessary to meet the preferential claims on the cover pool, including selling assets, issuing new bonds and entering new derivative agreements.

Appendix Table 1. Covered Bond Issuance and Asset Segregation in Europe

Model of Covered Bond Issuance	Model of Cover Asset Segregation	Jurisdictions
Universal Credit Institutions	Cover Register	Austria, Belgium, Cyprus, Czech Republic, Denmark, Germany, Greece, Finland, Portugal, Romania, Sweden, Slovenia, Slovakia
Specialized Credit Institutions	Transfer to specialized institutions, cover register	Denmark, Portugal, Finland, France, Ireland, Luxembourg, Norway, Poland
Universal/Specialized Credit Institutions	Special purpose vehicle (SPV)	Italy, Netherlands, the United Kingdom
Universal Credit Institutions	No segregation: recourse for the entire portfolio	Spain

Source: European Banking Authority report on covered bonds—recommendations on harmonization of covered bond frameworks in the European Union.

Appendix Figure 1. Size of International and Norwegian Covered Bond Markets

Source: European Covered Bond Council, and Finance Norway.

Appendix II. Assets Qualifying as Liquid Assets in LCR

Liquid assets	Haircut (percent)
Level 1	0
Cash	0
Central bank deposits	0
Government securities	0
Claims to international organisations or multilateral investment banks	0
Securities issued by Norwegian local authorities and public institutions	0
Covered bonds (within EU/EEA), risk class 1 (conditions apply)	7
Shares in mutual funds:	
Cash and central bank deposits	0
Level 1 assets, excluded covered bonds	5
Level 1 approved covered bonds	12
Level 2A	
Securities issued by European Union/European Economic Community (EU/EEC) local authorities and public institutions	15
Exposures to third countries	15
Covered bonds (within EU/EEA), risk class 2 (conditions apply)	15
Covered bonds (third countries), risk class 1 (conditions apply)	15
Corporate bonds, risk class 1	15
Shares in mutual funds, level 2A assets	20
Level 2B	
Asset-backed securities (residential mortgage bonds (RMBS)/ asset-backed securities (ABS))	25 / 35
Corporate bonds, risk class 3	50
Shares listed at main stock market	50
Restricted Use Committed Liquidity Facilities (RCLF), if available	-
Covered bonds (conditions apply)	50
Shares in mutual funds:	
Loans secured by residential real estate or vehicles	30
Level 2B approved covered bonds	35
Small and medium sized entities' (SME) loans, unsecured consumer loans	40
Corporate bonds and shares	55

Source: Regulation on calculation of liquid assets, outflows and inflows in the LCR.
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