

Norges Bank's settlement system

Annual report 2024

**Financial Stability
Interbank Settlement**

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Introduction

Pursuant to the Central Bank Act, Norges Bank shall facilitate a stable and efficient system for payment, clearing and settlement between undertakings that hold accounts with the Bank.¹ The purpose of Norges Bank's settlement system (NBO) is to settle payments securely and efficiently between banks and other financial sector undertakings with an account at Norges Bank. The operation of NBO was stable through 2024, and relevant standards and requirements for critical infrastructure are considered to have been met

The annual report covers the main activities and measures relating to the operation and development of NBO in 2024. At the end of 2024, a total of 112 banks and other financial undertakings had accounts with NBO, a decrease from 119 in 2023. The average daily turnover in NBO decreased by NOK 5bn to NOK 350bn in 2024. The highest daily turnover in NBO was on 15 May, at NOK 637bn. At year-end, banks had sight and reserve deposits totalling NOK 38bn.

The threats facing Norway's digital infrastructure has become more complex and challenging, driven by rapid technological development, increased digitalisation and a more complex geopolitical situation. This underlines the need to prioritise security and contingency arrangements at every level. In 2024, Norges Bank conducted a TIBER test of NBO using methods used by real-life threat actors to identify infrastructure vulnerabilities and areas of improvement. The test confirmed that Norges Bank has a mature security culture and solid infrastructure, which confirms that the Bank is well equipped to handle potential threats and attacks.

Norges Bank has continued to develop and improve the settlement system through 2024. A key milestone in this work is the transition to the new ISO 20022, a payment messaging standard, which will be implemented in March 2025 for gross payments and by the end of November 2025 for net payments.

Technological advances and changes in settlement systems among Norway's neighbouring countries have made it necessary to explore a future settlement system in Norway (NBO-RTGS²). Norges Bank has therefore begun researching the next generation settlement system, which is part of Norges Bank's strategy³, and is now entering into formal discussions with the European Central Bank (ECB) concerning participation in the T2 settlement system. In 2024, Norges Bank decided to establish a new real-time payment service in NOK (NBO INST) and signed an agreement with the ECB on participation in the ECB's common platform for securities settlement on 28 November 2024.

¹ [Act relating to Norges Bank and the Monetary System, etc. \(Central Bank Act\)](#)

² Real time gross settlement

³ [The central bank's strategy.](#)

1. Description of NBO

Norges Bank is the ultimate settlement bank in the Norwegian payment system. All electronic payments in NOK are ultimately settled between banks in Norges Bank's settlement system (NBO), including ordinary payments by households and firms, large payments in the financial and foreign exchange markets and payments involving the public sector. Banks' central bank money accounts in NBO and respective interest on deposits and loans are key tools for Norges Bank in the conduct of monetary policy and liquidity management.

Banks can participate directly or indirectly in the different payment settlements in NBO. Indirect participation means that a bank (indirect participant) uses another bank (direct participant) for payment settlements in NBO. The majority of Norwegian banks settle their payments indirectly in Norges Bank through another bank. At the end of 2024, 20 banks participated directly in net settlement in NBO. On the whole, these banks are the largest Norwegian banks and Norwegian branches of Nordic banking groups.

NBO consists of the core Real Time Gross Settlement (RTGS) system for payment settlement and a subsystem to process banks' pledged collateral for loans (SIL). The global Swift network is used as the primary channel for payment orders and other financial messaging⁴. NBO has a contingency arrangement in the RTGS system that can be activated when normal operating systems are unavailable, as well as contingency and continuity plans when different parts of the network solutions are unavailable. NBO account holders also have access to their accounts via NBO Online, similar to standard online banking based on communication through a secure network solution. As a rule, each account holder has one main account, one loan account and one or more sub-accounts.

2. NBO operations

2.1 Operational stability

The settlement function in NBO needs to be efficient, secure and with no material operational problems. The operation of the settlement system was stable through 2024 and there were no material operational problems. There were two instances of operational problems at other financial infrastructure participants and one instance of technical problems internally at Norges Bank that made it necessary for Norges Bank to extend NBO's opening hours in order to settle payments on the same day.

2.2 System solution upgrades

NBO system solutions are regularly upgraded in line with system providers' recommendations to ensure both relevant customer support and the recommended security standards. In addition, functional upgrades are carried out to as and when new functionality is required. This is driven by technological advances and adjustments to amended standards. Extensive testing and exercises are carried out before system solutions are upgraded in order to adequately maintain operations.

⁴ Swift: Society for Worldwide Interbank Financial Telecommunication

In preparation for the ISO 20022 standard, NBO was upgraded to a new version in November 2024, and banks gained access to an updated user interface. Functionality has been expanded in the loan collateral system, including increased automation of processes for releasing and pledging collateral in central securities depositories (CSDs).

3. Development of the settlement system

3.1 New messaging standard for payments– ISO 20022

In 2018, the board of directors of Swift, the international messaging system, decided that a number of the current Swift FIN messages would be replaced with the ISO 20022 standard. NBO is based on the Swift network and Swift's messaging standard for payments for the exchange of settlement instructions with participants in NBO. ISO 20022 is an international messaging standard for payment processing that replaces old, national and proprietary formats and standards. ISO 20022 will enable messages to be sent across financial market infrastructures (FMIs), increase cross-border standardisation and meet regulatory requirements, for example in connection with anti-money laundering. In addition, the ISO 20022 format is more structured, and messages can contain more information to facilitate increased payment processing automation.

Since 2020, Norges Bank has been preparing the transition to the ISO 20022 format in NBO. The ISO 20022 standard that will be used in NBO has been developed in collaboration with the financial industry, the Swedish and Icelandic central banks and the settlement system providers. With the new ISO 20022-based messages, financial messaging will take place directly between a participant in NBO and Norges Bank.

Adaptations to the new ISO 20022 format will be made together with an extensive NBO update. System and contingency solutions, networks and the infrastructure have been upgraded, while cybersecurity, redundancy and performance improvements have been made in the system solutions. Comprehensive testing has been conducted with the participants, and the new ISO 20022 messaging standard is scheduled to be implemented in NBO from March 2025 for gross payments and by the end of November for net payments.

NICS currently receives Swift gross payments from banks and forwards them to NBO. In 2024, Bits AS decided that NICS would not be developed to receive and process ISO 20022 based-transactions. This means that all Swift gross payments will be sent directly to NBO. Banks already have this possibility, but this will lead to a significant increase in transaction volumes for NBO. Norges Bank has performed tests to ensure that NBO will be able to cope with the increased volume. Bits has established a working group to plan the transition and Norges Bank is one of the participants.

3.2 Next generation settlement system

Owing to technological advances and changes in the settlement systems in neighbouring countries, Norway's future settlement system must be researched. Norges Bank has therefore started exploring the next generation settlement system as part of Norges Bank's strategy work. Norges Bank has evaluated two alternative directions: acquiring a new dedicated platform for NBO, which Norway has today, or joining a common platform through the Eurosystem's T2, as Norway's neighbouring Nordic

countries have decided. Norges Bank has concluded that participation in T2 together with the other Nordic countries is the best choice for an efficient and secure payment system in the long term.

Norges Bank is now entering into formal discussions with the ECB to commence a process with mutual exchange of information for necessary clarifications. More information is needed for addressing remaining questions related to security and contingency arrangements. Designing a sound model for smaller banks' participation in T2 is also necessary.

Norges Bank will continue its dialogue with other government bodies and involve the financial industry and other market participants where relevant. A final decision will be made once necessary clarifications have been addressed. Norges Bank estimates that an agreement on participation in T2 may be ready by the end of 2025 at the earliest.

3.3 New solution for real-time payments – NBO INST

Real-time payments ensure that payees receive funds directly in their accounts seconds after the payment is made - 24 hours a day, seven days a week. Since 2020, Norges Bank has explored an expansion of its role as a settlement bank for real-time payments, including whether to collaborate with the ECB. Issues such as costs, security and contingency arrangements and the ability to facilitate specific Norwegian requirements have been key elements in the evaluation.

Norges Bank has decided to establish NBO INST as a new solution for real-time payments in NOK and signed a collaboration agreement with the ECB on 28 November 2024⁵. Participation in TIPS⁶ means that real-time interbank payments are settled individually in central bank money on the ECB's technical platform. The NBO INST solution for real-time payments is to be competitively neutral, secure and efficient and enable more rapid and efficient transfers of money to and from users in other Nordic and European countries.

In cooperation with the financial industry, Norges Bank will plan for the transition to the new settlement solution to be implemented with the lowest possible risk for all parties involved. The settlement solution for real-time payments is scheduled for implementation in the first half of 2028.

4. Risk outlook

4.1 Developments

Norges Bank's settlement system is the core of the payment system. It ensures settlement finality in central bank money of interbank payments in NOK. The current settlement system in Norges Bank is efficient, stable and secure, and has been throughout 2024.

⁵ See also the press release of 28 November 2024: [Norges Bank signs instant payment settlement agreement with the ECB](#).

⁶ TIPS: TARGET Instant Payment Settlement

The threat landscape for Norwegian digital infrastructure, including the financial sector, has become increasingly more complex and challenging owing to rapid technological advances, increased digitalisation and a more complex geopolitical situation⁷. This development emphasises the need to prioritise security and contingency arrangements at every level, in individual entities, the financial sector as a whole and across sectors and national borders.

Functions critical to Norwegian society are dependent on suppliers and subcontractors. These supply chains are becoming increasingly more complex and may have unknown and serious vulnerabilities that can be exploited. This requires the ability to detect and prevent security risks in the supply chains on which NBO relies.

4.2 Systematic risk management and mitigation

Norges Bank is working continuously and in a structured manner to prevent cyber and non-cyber incidents from affecting the settlement system. Day-to-day risk monitoring is organised through NBO's risk forum. The risk forum is chaired by the Executive Director of Norges Bank's Financial Stability Department and comprises participants from units in interbank settlement, compliance, security and IT. Each quarter, the forum reviews risk assessments to provide a basis for internal activity reports. In addition, external providers of operating platforms and system solutions provide risk assessments relevant for system deliveries. Norges Bank also collaborates with the security authorities as required. The risk outlook for the settlement system is updated continuously when significant incidents or changes occur.

Service provider follow-up is a key risk-mitigation measure and this was continued in 2024. Furthermore, scenario-based and interdisciplinary exercises have been improved to ensure that contingency arrangements remain robust and relevant in response to the evolving risk outlook.

5. Continuity and contingency arrangements

5.1 Continuity and contingency plans

In order to strengthen NBO's resilience and efficiency, continuity and contingency measures have been established for key operations and electronic communication with other key participants. The planning framework consists of an overall plan and detailed procedures to handle operational problems and ensure that continuity and contingency plans are in place.

Norges Bank has initiated work to establish a national contingency solution for NBO that can be used for settlement if other contingency and continuity arrangements are unavailable. The project is in an early phase and will be established as part of the next generation settlement system.

NBO's operational procedures are regularly updated and revised in response to changes. In addition, common procedures have been established to handle operational problems between Norges Bank and external participants that send clearing and payment orders to be settled in NBO.

⁷ [NFCERT 2024 Cyber Threat Landscape *nfcert-cyber-threat-landscape-2024*](#).

5.2 Contingency exercises

In 2024, Norges Bank continued work to implement an exercise plan for various settlement system functions. The plan included both internal exercises and exercises in collaboration with external participants. Among the most important exercises were those involving NICS, VPS, Swift and CLS, where realistic scenarios were used to test the system's resilience and contingency arrangements. The exercises were followed up with an exchange of experiences and measures to strengthen problem-solving procedures and contingency arrangements.

In addition, Norges Bank conducted a number of scenario-based interdisciplinary exercises to enhance contingency arrangements and ensure that all involved parties were well prepared to handle potential operational problems. The lessons learned from the exercises were used to improve procedures and processes and ensure that the settlement system remains resilient to future challenges.

5.3 TIBER-NO test of NBO

In 2024, Norges Bank conducted a TIBER⁸ (Threat Intelligence-Based Ethical Red-teaming) test of NBO. In order for the test to meet the TIBER-NO framework requirements, real-life threat actors' methods and techniques are used as a basis for building red team's attack vectors. With a risk-based approach, the test objective was to develop an attack that was as realistic and advanced as possible to identify infrastructure vulnerabilities and areas of improvement.

The test identified some areas of improvement to further strengthen Norges Bank's security infrastructure, but no critical vulnerabilities. Nevertheless, measures have been taken to further optimise NBO's systems and processes. Examples include improving targeted employee training and improving threat detection. This is part of Norges Bank's ongoing work in cybersecurity and risk management to maintain the highest security and protection standards.

The test conclusions confirmed that Norges Bank has a mature security culture and a solid infrastructure that show that the Bank is well equipped to handle potential threats and attacks.

5.4 NBO continuity forum

The NBO continuity forum (NBOK) is a collaborative body for banks and other key financial infrastructure participants in Norway. The forum was established by Norges Bank in 2015 and aims to be an operational advisory body where participants can meet in the early stages of an operational problem to discuss and improve communication and enhance participants' expertise on interrelationships in the payment system. NBOK is a communication network to share expertise between key payment system participants. The purpose is both to prevent operational problems and coordinate responses that affect settlement processing in NBO. Relevant exercises will be held to enhance the handling of such payment system problems and to ensure that participants have updated procedure descriptions for use in the event of real operational problems.

⁸ [TIBER - Threat Intelligence-Based Ethical Red-teaming](#)

In 2024, two physical meetings were held, one with an exercise that simulated an operational problem in the Swift communication interface. NBOK was convened twice, as a virtual meeting, in connection with operational problems that required coordination between the payment system participants.

6. Compliance

6.1 International recommendations

The settlement system's operation and development must comply with relevant international recommendations and critical infrastructure requirements. The international Principles for Financial Market Infrastructures (PFMI) issued by the CPMI⁹-IOSCO¹⁰ are international standards for FMIs. The PFMI are supplemented by the *Guidance on cyber resilience for financial market infrastructures*. In 2024, Norges Bank prepared a report in accordance with the PFMI Disclosure Framework. The report will be made available on Norges Bank's website in spring 2025.

Norges Bank submits an annual Swift CSP – CSCF Self Attestation¹¹ and the review in 2024 confirms compliance with the mandatory controls.

6.2 Audits and supervision

NBO is supervised by various bodies. Norges Bank's external auditor, Ernst & Young AS (EY), has reviewed some NBO areas in connection with the annual audit of Norges Bank's accounts. NBO is also audited by Internal Audit at Norges Bank.

Norges Bank is the licensing authority for interbank systems (clearing and settlement systems) pursuant to the Payment Systems Act etc and supervises systems that are licensed. Norges Bank also oversees the payment system and other FMIs pursuant to the Central Bank Act. As part of this supervision and oversight, Norges Bank emphasises, among other things, the importance of the systems' compliance with international key financial infrastructure recommendations (cf Section 6.1). NBO is also subject to internal oversight based on these recommendations.

⁹ CPMI: Committee on Payments and Market Infrastructures. The CPMI is a committee comprising representatives of central banks.

¹⁰ IOSCO: International Organization of Securities Commissions. IOSCO is the international organisation of securities market regulators.

¹¹ Swift Customer Security Programme - Customer Security Controls Framework (Swift CSP-CSCF) Self Attestation.

7. Account management – Key figures and changes in 2024

7.1 Key figures

Table 1. Key NBO figures over the past five years

	2024	2023	2022	2021	2020
<i>Daily average, in billions of NOK</i>					
- Turnover	350	355	339	301	421
- Banks' deposits	35	34	32	33	35
- Lending facility (securities)	474	456	405	418	498
- F-deposits	31	8	8	17	83
<i>Daily average, number of transactions</i>					
- Payment orders	4 595	3 782	3 540	3 188	2 935
<i>Number at year-end</i>					
- Total number of accounts	112	119	121	126	130
- of which accounts for banks	104	111	113	118	122
- Users of NBO Online	462	478	481	539	550

7.2 Turnover in NBO

In 2024, average daily turnover amounted to NOK 350bn, down from NOK 355bn in 2023. Turnover in NBO was highest on 15 March, at NOK 637bn, owing to, among other things, F-deposits reaching maturity; the deadline for payments of employers' national insurance contributions, financial tax, tax deductions and withholding tax; pension disbursements, early retirement pension disbursements and disability benefits; as well as student loan payments to the Norwegian State Educational Loan Fund. Turnover was lowest on 14 October at NOK 166bn. Banks' sight and reserve deposits totalled NOK 38bn at year-end 2024.

In 2024, daily payment orders averaged 4 595, up from 3 782 in 2023.

Chart 1 Turnover in billions of NOK and number of transactions. Monthly average. 2024.

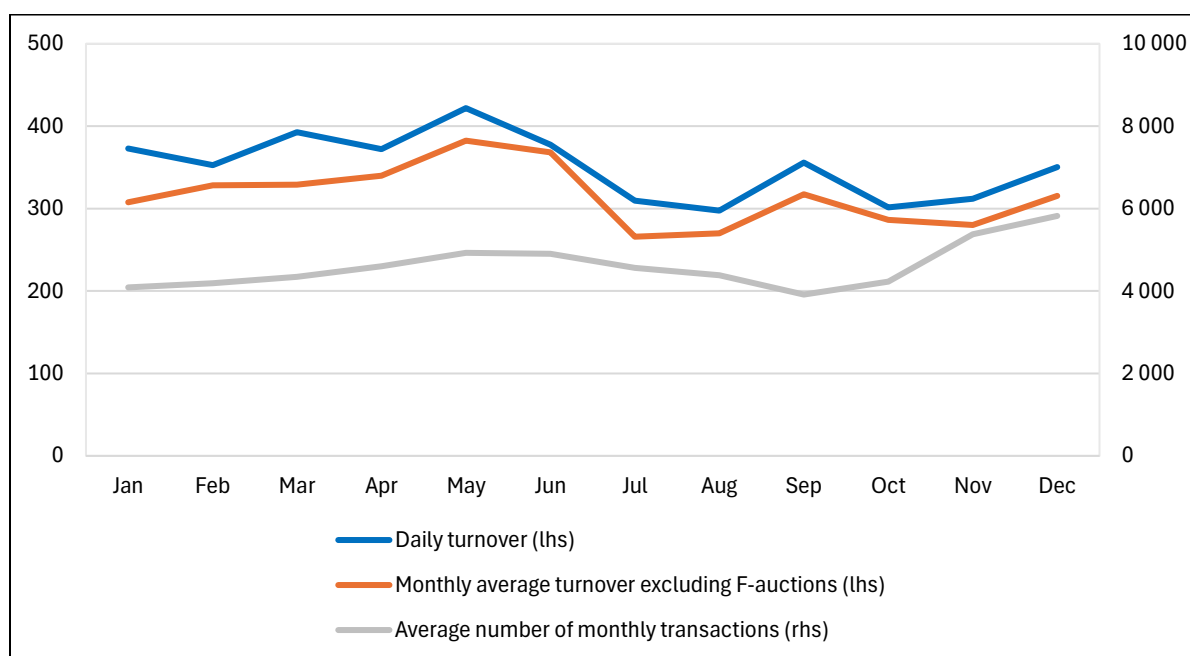
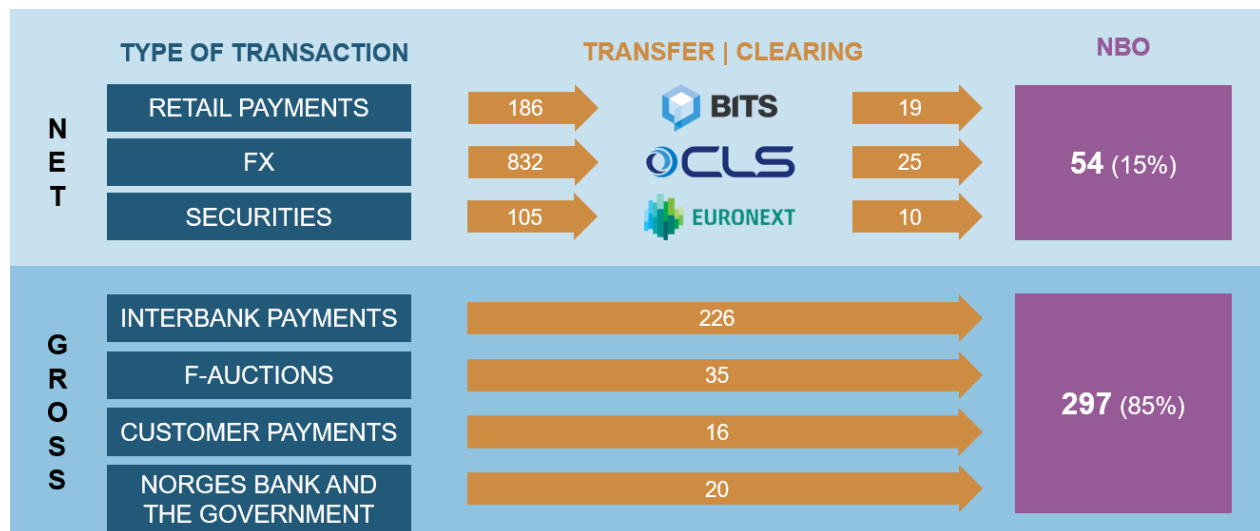


Chart 2 The payment system – Distribution of turnover in NBO in 2024. Daily average in billions of NOK



Sources: Bits AS, CLS Bank, Euronext Securities Oslo and Norges Bank

Turnover in NBO constitutes the following:

- Gross settlement is the settlement of individual payments in real time and accounts for 85% of turnover in NBO (Chart 2). Gross settlement includes large financial transactions that are primarily related to foreign exchange trading and liquidity management.
- In NICS¹², net settlement of retail payments mainly comprises net settlement batches by Bits AS. Banks' net positions are settled in NBO. In 2024, daily payments averaging NOK 186bn were cleared to NOK 19bn by Bits AS for settlement in NBO.
- Securities settlement (VPO) includes payments between banks for trades in securities. The cash leg of securities settlement is settled in NBO. Securities settlement, ie the transfer of ownership, takes place in Euronext Securities Oslo.
- Payment obligations to CLS (global FX settlement system)¹³ in NOK are settled in NBO. In 2024, banks' daily trades in NOK processed in CLS averaged NOK 832bn, with banks' net positions in NOK averaging NOK 25bn.

¹² NICS: Norwegian Interbank Clearing System.

¹³ [CLS: Continuous Linked Settlement](#)

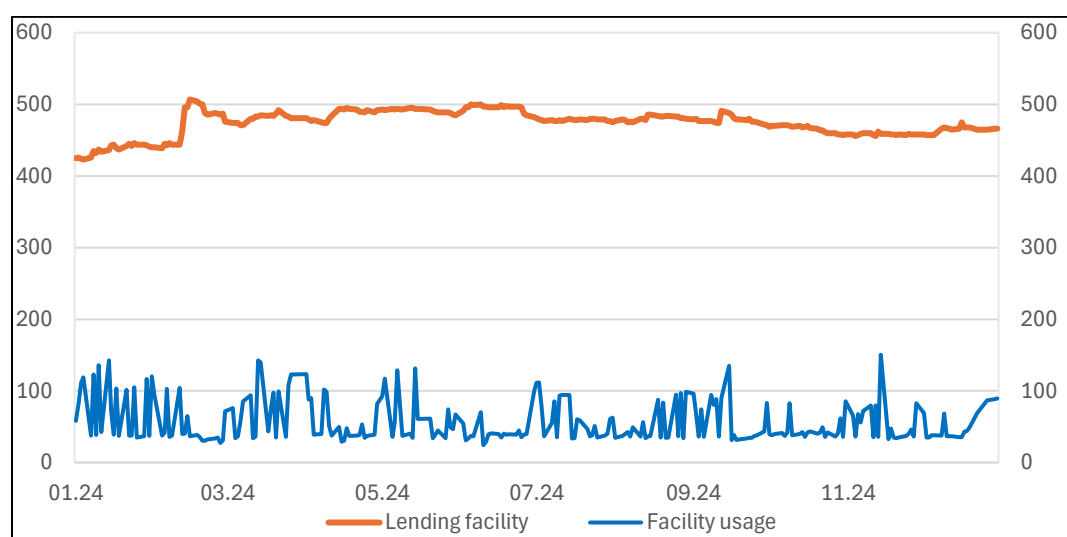
7.3 Access to Norges Bank's lending facility

Banks are permitted to borrow from Norges Bank against collateral in the form of securities, F-deposits in Norges Bank or deposits in Danmarks Nationalbank or Sveriges Riksbank under the Scandinavian Cash Pool (SCP) arrangement. Such loans contribute to streamlining payment settlement and the conduct of monetary policy. Central counterparties can also be provided with access to the intraday lending facility by pledging securities as collateral.

An overview of approved securities is available on Norges Bank's website¹⁴. The guidelines for pledging securities and fund units as collateral for loans from Norges Bank were changed on 1 October 2024, adding Nordic Credit Rating to the list of approved credit rating agencies.¹⁵

The securities pledged in a central securities depository approved for this purpose by Norges Bank determines the size of the lending facility. Approved securities depositories are Euronext Securities Oslo (Verdipapirsentralen ASA), Euroclear Bank SA/NV in Belgium and Clearstream Banking SA in Luxembourg.

Chart 3 Daily lending facility and facility usage. In billions of NOK. 2024



In 2024, the lending facility averaged NOK 474bn, up from NOK 456bn in 2023. The lending facility¹⁶ was highest in June at NOK 496bn and lowest in January at NOK 437bn. Actual facility usage¹⁷ averaged NOK 57bn, ie about 12% of the total lending facility. Average monthly facility usage was highest in March, at NOK 75bn and lowest in June, at NOK 19bn. Highest total intraday borrowing varied between NOK 24bn and NOK 150bn.

¹⁴ [Securities approved as collateral for banks' loans](#)

¹⁵ [Guidelines for pledging securities and fund units as collateral for loans from Norges Bank](#)

¹⁶ Lending facility figures apply to securities pledges and do not include F-deposits or deposits in other central banks under the SCP arrangement.

¹⁷ Figures for facility usage apply to intraday loans and any F-loans.

7.4 Changes to account management

Most Norwegian banks have an account in NBO. Norges Bank has also started to permit central counterparties (CCPs), central securities depositories (CSDs) and banks in the European Economic Area (EEA) with cross-border operations to apply to open an account. A number of such institutions have requested accounts in recent years. These are considered *other counterparties* in accordance with the rules laid down in the Lending Regulations, and special terms and conditions have been laid down for these accounts.

At year-end 2024, 104 banks had accounts in NBO, down from 111 in 2023. In addition, CLS Bank has an account in NBO for daily settlement of the NOK leg of FX trades. Cboe Clear Europe (formerly EuroCCP NV), LCH Ltd, Euronext Clearing and Nasdaq Clearing AB are CCPs in the trade of financial instruments and have accounts in NBO. Furthermore, the Bank for International Settlements (BIS) has an account in NBO. The total number of accounts in NBO at year-end 2024 was 112, down from 119 in 2023. In addition, there is an account in NBO for the settlement of payments to and from the government.

The following changes were implemented during the year:

- Larvikbanken and Andebu Sparebank were merged into Skagerrak Sparebank, effective from 1 February 2024.
- Bank2 ASA was merged into Bluestep Bank AB effective from 3 April 2024.
- Sandnes Sparebank (acquiring bank) and Hjelmeland Sparebank were merged, effective from 1 August 2024 under the name Rogaland Sparebank.
- Hjartdal og Gransherad Sparebank was merged into Skue Sparebank, effective from 1 August 2024.
- SpareBank 1 SR-Bank (acquiring bank) and SpareBank 1 Sørøst-Norge were merged, effective from 1 October 2024 under the name SpareBank 1 Sør-Norge.
- Sparebanken Sogn og Fjordane changed its name to SpareBank 1 Sogn og Fjordane on 14 October 2024.
- Euronext Clearing began using its account in NBO, effective from 10 September 2024.
- LCH SA closed its account with NBO from 1 October 2024.
- Totens Sparebank was merged with SpareBank 1 Østlandet, effective from 1 November 2024.

Pursuant to Section 3-1 Paragraph 2 of the Central Bank Act and the Regulation on the Access of Banks to Borrow and Deposit Facilities in Norges Bank, Norges Bank sets the terms and conditions for account management at Norges Bank. On 15 March 2024, Norges Bank announced that the terms and conditions for various types of financial sector undertakings would be one set of terms and conditions.¹⁸ Although combining the account management terms and conditions for banks and CCPs

¹⁸ [Terms and conditions for account management at Norges Bank from 15 April 2024.](#)

mainly involved editorial changes, some minor amendments and clarifications were made. Among the most important amendments was a provision allowing CCPs to hold limited overnight deposits.

The new Central Bank Act and lending regulations from 2020 entailed changes in the criteria regulating which institutions can open an account at Norges Bank and the terms and conditions that apply to account management. One main requirement is that account management must promote the purpose of Central Banking, which is to *maintain monetary stability and promote the stability of the financial system and an efficient and secure payment system*. The Lending Regulations distinguish between monetary policy counterparties that have access to all of Norges Bank's deposit and lending facilities and other counterparties that may have access to Norges Bank's standing deposit and lending facilities or parts thereof. In the assessment of such cases, particular emphasis is placed on the extent to which the counterparty participates actively in the payment system and whether the counterparty's holding of an account will contribute to financial stability or otherwise further the purpose of central banking.

7.5 Prices and fees in NBO

Banks and other financial sector undertakings pay for account management and settlement services in Norges Bank. Prices are set annually so that income covers two-thirds of the cost of implementing, developing and operating the settlement system. In autumn 2024, Norges Bank decided to increase prices by approximately 14% from 2024 to 2025. From 2023 to 2024, prices increased by about 20%, reflecting higher NBO licensing costs, as well as wage and price increases. In addition, bank mergers lead to costs being distributed over fewer account holders.

The fee for violation of the permitted quota of NBO online user accounts is removed from 2025 as this no longer needs to be regulated. Apart from that, the fees for breaches etc of the Terms and Conditions for Account Management have been retained with no changes from 2024 to 2025.

The prices in 2024 generated income of NOK 143m.