NORGES BANK'S SETTLEMENT SYSTEM (NBO)

Self-assessment against the international principles for financial market infrastructures

FINANCIAL STABILITY
INTERBANK SETTLEMENT UNIT

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NORGES BANK

Contents

Introduction

Norges Bank published in May 2017 a self-assessment of its RTGS system based on the Principles for Financial Market Infrastructures (PFMIs) issued by CPMI/IOSCO in April 2012. This report is an English version of the self-assessment with updated status on the current legal basis for settlement of securities trades when a participant is set under public administration or insolvency procedures. Also the description of the CCPs participation in NBO is updated in this version.

The following supplementary documents published since were also used as a basis for the self-assessment:

- Disclosure framework and Assessment methodology, December 2012
- Application of the *Principles for financial market infrastructures* to central bank FMIs, August 2015

In June 2016, CPMI/IOSCO also published separate *Guidance on cyber resilience for financial market infrastructures*. This is being followed up separately by Norges Bank and is not part of the self-assessment.

The guidance on the application of the principles for central bank FMIs provides a more specific guidance, where relevant, on the interpretation of each principle. Regardless of whether the central bank operates an FMI, the guidance specifies that the principles are not intended to constrain central bank policies on:

- To whom and under which terms it is prepared to offer central bank accounts, cf. Principle 18
- Provision of credit by the central bank, or the terms of and limits on such provision, cf. Principle 4
- What constitutes eligible collateral for its lending operations, cf. Principle 5
- Maintaining financial stability, including managing participant defaults, cf. Principle 13
- Investment strategy, including that for reserve management, or the disclosure of that strategy, cf. Principle 16
- Decisions on implementation of monetary policy

1 Summary

Norges Bank hereby publishes its self-assessment for 2016 of Norges Bank's settlement system (NBO) against the Principles for Financial Market Infrastructures (PFMIs) formulated by CPMI/IOSCO and published in April 2012. The self-assessment was performed by the Interbank Settlement Unit, to which system ownership of NBO has been assigned. An internal self-assessment against the principles has been performed previously, but this is the first self-assessment to be published.

The principles are designed to broadly apply to all systemically important financial infrastructures. Settlement systems at central banks differ from other financial infrastructures in a number of ways. Central banks have an exclusive right to issue means of payment, resulting in a lack of credit or liquidity risk vis-à-vis the settlement bank by the participating settlement members. Central banks also play other important roles in society in areas such as monetary policy and financial stability, which has implications for governance and organisational structure. These considerations effect the assessment against specific principles.

Seven of the 24 principles are not considered relevant to the settlement of payments at Norges Bank (nos. 6, 10, 11, 12, 14, 20 and 24), while the remaining 17 are considered relevant. Norges Bank's conclusion is that the legal basis, governance arrangements and solutions for the settlement system broadly observe the principles. No specific issues of concern have been identified that warrant immediate action. It is vital that all changes are monitored as NBO's legal basis is under constant evolution. This applies in particular to the risk profile and threat assessments, preventive measures, and the continued development of systems and operating solutions. Together with this work, compliance with the principles is reviewed regularly in accordance with the recommendations.

Norges Bank has established a system for the oversight of NBO in line with international recommendations. Oversight is performed by a separate unit which ensures that the settlement system complies with the Norges Bank Act's objective of promoting an efficient payment system. Furthermore, oversight ensures that NBO meets or exceeds the standards of efficiency, security, and robustness as the interbank systems with licences from Norges Bank, and complies with international recommendations, including the PFMIs. The principles assessed by the oversight unit are set out in Norges Bank's Financial Infrastructure Report for 2018.

2 About the FMI

2.1 Description of NBO and the markets served

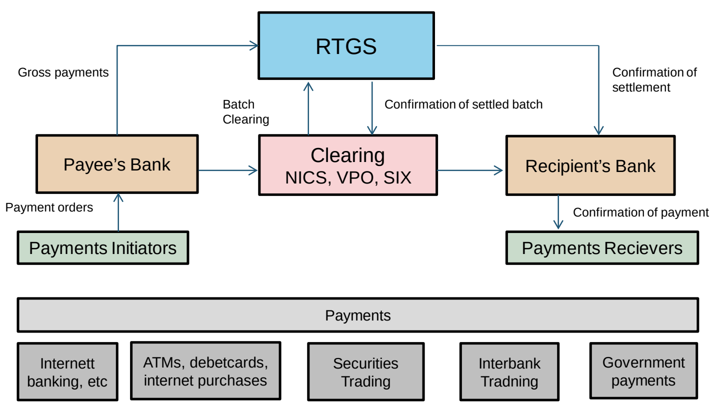
Norges Bank's settlement system (NBO) is at the core of the systems for payment clearing and settling in Norway. Payments and transfers between banks and/or Norges Bank are settled with finality when they are posted to banks' accounts in NBO. Payments can be settled individually or as the settlement of net positions arising from clearing from the Norwegian Interbank Clearing System (NICS), the central securities depository Verdipapirsentralen (VPS), or CCPs in trades in financial instruments, currently SIX x-clear and EuroCCP and LCH.

Payments settled in NBO originate from banks' liquidity management, payment services for customers, currency trading, and settlement of securities and derivatives transactions. Transfers between banks and Norges Bank originate from the use of liquidity policy instruments, governmental payments, banks' deposits and withdrawals of cash, and Norges Bank's own operations.

Banks can submit payment orders for settlement in NBO via the main channel SWIFT, NBO Online or NICS. Banks access their account information using NBO Online.

The payment system consists of payment service systems, which are customer-orientated, and interbank systems for clearing and settlement. These systems are closely related both technically and functionally. A majority of payments are included in daily clearings between banks and the net positions are settled bilaterally to their respective accounts at a settlement bank. Norges Bank is the ultimate settlement bank. The chart below illustrates the key features of the Norwegian payment system.

The Payment System



2.2 Organisation of the FMI

Settling payments in NBO is one of Norges Bank's core tasks as central bank. Norges Bank's Executive Board has ultimate responsibility for settlement operations, and Norges Bank's Supervisory Council is the ultimate supervisory body. The responsibility for day-to-day settlement operations and development initiatives is linked to system ownership, which has been delegated to a dedicated Interbank Settlement Unit under the Financial Stability Department.

The Interbank Settlement Unit performs day-to-day tasks such as the operational oversight of the settlement of payments, the management and development of the system solutions used and administrative tasks such as following up of agreements with external service providers, risk analyses and management reporting, and contingency plans and exercises.

2.3 Legal framework

A variety of laws, regulations and internal guidelines govern settlement operations at Norges Bank. The most important regulations are presented below.

Norges Bank Act and associated regulations
The Norges Bank Act requires Norges Bank to promote an efficient payment system domestically as well as vis-à-vis other countries, and monitor developments in the money, credit and foreign exchange markets. The Bank may implement any measures customarily or ordinarily taken by a central bank. To fulfil its purposes, the Bank may engage in any and all types of banking business and banking services.

Section 19 on extension of credit to banks and Section 20 on deposits from banks give banks the right to open accounts at Norges Bank. More detailed terms and conditions for such accounts are provided in the Regulation on the Access of Banks to Borrowing and Deposit Facilities in Norges Bank etc. (the Lending Regulation), the Guidelines for Collateral for Loans from Norges Bank, and the Terms and Conditions for Account Management, Collateralisation and Participation in NBO (the NBO Terms and Conditions).

Section 22 of the Norges Bank Act entitles Norges Bank to make loans to, and accept deposits from, entities in the financial sector other than banks. CLS Bank and CCPs in trades in financial instruments have accounts at Norges Bank pursuant to this provision.

Financial Collateral Act
This act applies to agreements on the provision of financial collateral, including agreements to which Norges Bank is party. The act contains provisions relevant to Norges Bank's role as provider of credit and recipient of collateral, such as protection against the invalidation of collateral, the right to realise collateral quickly and efficiently, the right to set claims off against deposits, and choice of law. The act also includes a special provision on legal protection for agreements on the provision of financial collateral to Norges Bank in the form of one or more specified debt obligations, where the Bank's rights to the debt obligations also confer rights to the underlying collateral, such as residential property. Norges Bank's rights to the collateral are automatically protected without any special action. This provision on legal protection does not apply where a debt obligation relates to a negotiable or redeemable instrument.

Payment Systems Act
One aim of the provisions in Chapter 2 of the act is to ensure that interbank systems are organised in such a way that promotes financial stability. Emphasis is to be placed on mitigating the risks associated with liquidity or solvency problems of participants in such systems. Norges Bank is not covered by the act's provisions on interbank systems but nevertheless attaches importance to complying with those that are relevant to NBO. NBO is an interbank system of critical importance for the financial infrastructure in Norway and thus also for financial stability. Norges Bank is, however, covered by Chapter 4 of the act on legal protection and collateral for clearing and settlement agreements.

Act relating to Protective Security Services (the Security Act) and Regulation on Physical Security
One of the aims of the Security Act is to "ensure effective mitigation of threats to the independence and security of the realm and other vital national security interests". Pursuant to the act, the Ministry of Finance has registered NBO as a "Critical National Infrastructure" with the National Security Authority. The Regulation on Physical Security sets out various requirements for the protection of sensitive objects. Assessing which security measures should be taken for NBO is an ongoing task for Norges Bank.

Act on Financial Institutions and Financial Groups (Financial Institutions Act)
This act regulates insolvency and public administration of banks, among other things. These situations have a bearing on banks' accounts with the central bank and participation in the settlement of payments at Norges Bank.

ICT Regulations
These regulations issued by the financial supervisory authority (Finanstilsynet) contain a series of requirements concerning operational, security and contingency arrangements in the financial sector's use of information and communication technology. Norges Bank is not covered by the regulations, but acknowledges the importance to complying with relevant parts in line with best practice for important ICT systems.

Regulation on Risk Management and Internal Control at Norges Bank (the Internal Control Regulation)
Issued by the Ministry of Finance, this regulation specifies requirements for risk management and internal control at Norges Bank. It defines, among other things, the responsibilities of the Executive Board and the Governor, and specifies requirements for subcontracted activities.

Terms and Conditions for Account Management, Collateralisation and Participation in NBO (the NBO Terms and Conditions)
The NBO Terms and Conditions contain detailed rules on account management, the implementation of payment settlement, collateral requirements for loans, contingency arrangements, prices and fees, and more. The timing of final settlement is set out in Section 3 in line with Section 4-2 of the Payment Systems Act. The NBO Terms and Conditions specify that a payment order is settled with finality when it has been debited from or credited to one of the bank's accounts in NBO. It is not possible to revoke a payment order that has been finalised.

The NBO Terms and Conditions apply to both gross and net settlement. Norges Bank has the right to reject any payment order for which there are insufficient funds. To ensure that all participants in securities settlement have sufficient funds to cover their payment obligations, funds are locked in a separate account until balances have been checked and settlement has been carried out.

Norges Bank has entered into agreements with all parties that submit clearings for settlement in NBO, i.e. the interbank system NICS, the central securities depository Verdipapirsentralen (VPS) and CCPs in trades in financial instruments (currently SIX x-clear, EuroCCP and LCH).

Collateral for loans

Banks' access to borrowing and lending facilities at Norges Bank is regulated by Section 19 of the Norges Bank Act, the Lending Regulation and the Guidelines for Collateral for Loans from Norges Bank.

Norges Bank may grant loans against approved collateral. Chapter 6 of the NBO Terms and Conditions ("Collateral for loans from Norges Bank") contains rules on the collateral that banks may provide for loans from Norges Bank and rules on the realisation of collateral. Under the NBO Terms and Conditions, Norges Bank has the right to perform close-out netting and realise securities pledged as collateral if a bank defaults on its obligations to Norges Bank, is placed under public administration or has its access to loans from Norges Bank suspended or limited. Securities provided as collateral for intraday and overnight loans (D-loans) and fixed-term loans (F-loans) may be registered with the central securities depositories approved by Norges Bank, currently Verdipapirsentralen ASA (VPS) in Norway, Euroclear Bank in Belgium and Clearstream Banking in Luxembourg. Rules on legal protection and the right to realise collateral depend on the local laws of the country in which the securities are registered and the securities account is held.

Handling participant default

The NBO Terms and Conditions contain provisions on the parties' rights and responsibilities if a participant is subject to debt settlement or bankruptcy proceedings under the Bankruptcy Act, or if a bank is placed under public administration. The NBO Terms and Conditions refer to various laws regulating such situations, including the Financial Institutions Act, the Satisfaction of Claims Act, the Financial Collateral Act and the Payment Systems Act. If a participant is placed under public administration or into bankruptcy, Norges Bank has the right to perform close-out netting and to realise securities that the participant has put up as collateral for loans from Norges Bank, cf. Section 6 of the NBO Terms and Conditions. Norges Bank's procedures for handling a situation where a participant in NBO is placed under public administration or into bankruptcy proceeding have been published in a circular.

3 Assessment of NBO against the principles

For each PFMI, we explain and comment on the regulations, arrangements, procedures and measures relevant to NBO and provide an overall assessment of how the principle is observed. The structure with key considerations and associated questions is retained. The principles, guidance, key considerations, and questions from the PFMI document are included in italics. Where the answers to multiple questions in the same area are identical, the answers are identical, or reference is made to the reply to a related question. This is to make the report easier to read.

Principle 1: Legal basis

An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

As a robust legal basis for an FMI's activities in all relevant jurisdictions is critical to an FMI's overall soundness, this principle should be reviewed holistically with the other principles.

Key consideration 1

The legal basis should provide a high degree of certainty for each material aspect of an FMI's activities in all relevant jurisdictions.

Material aspects and relevant jurisdictions

Q.1.1.1: What are the material aspects of the FMI's activities that require a high degree of legal certainty (for example, rights and interests in financial instruments; settlement finality; netting; interoperability; immobilisation and dematerialisation of securities; arrangements for DvP, PvP or DvD; collateral arrangements (including margin arrangements); and default procedures)?

Settlement finality

The timing of final settlement of payments is set out in Section 3.2 of the NBO Terms and Conditions pursuant to Section 4-2 of the Payment Systems Act. The NBO Terms and Conditions specify that a payment order is regarded as entered in NBO and settled with finality when it has been debited from or credited to one of the bank's accounts in Norges Bank. Norges Bank, the bank or a third party may not recall the payment order after this time.

Execution of net settlements

The provisions on settlement finality in the NBO Terms and Conditions apply to both gross and net settlements. Section 3.7 gives Norges Bank the right to reject both gross and net settlements if there are insufficient funds, and to settle a clearing that replaces a rejected clearing. The NBO Terms and Conditions also regulate the execution of securities settlements and payment orders from CCPs, cf. Sections 3.5 and 3.6. To ensure that all participants in securities settlement have sufficient funds to cover their payment obligations, funds are locked in a separate account until balance checking and settlement have been carried out.

A separate agreement has been entered into with each party submitting net positions for settlement at Norges Bank, i.e. NICS, VPS and the CCPs in trades in financial instruments.

Collateral for loans

Banks' access to loans from Norges Bank is regulated by Section 19 of the Norges Bank Act, the Lending Regulation and the Guidelines for Collateral for Loans from Norges Bank.

Norges Bank may grant loans against approved collateral. Chapter 6 of the NBO Terms and Conditions contains rules on the collateral that banks may provide for loans from Norges Bank and rules on the realisation of this collateral. The NBO Terms and Conditions give Norges Bank the right to perform close-out netting and realise securities pledged as collateral if a bank defaults on its obligations to Norges Bank, is placed under public administration or has its access to loans from Norges Bank suspended or limited.

Securities pledged as collateral for intraday and overnight loans (D-loans) and fixed-term loans (F-loans) may be registered in the central securities depositories approved by Norges Bank, currently Verdipapirsentralen ASA (VPS) in Norway, Euroclear Bank in Belgium and Clearstream Banking in Luxembourg. Rules on legal protection and the right to realise collateral depend on the local laws of the country in which the securities are registered and the securities account is held.

Handling of banks under public administration

The NBO Terms and Conditions contain provisions on the parties' rights and responsibilities if a participant is subject to debt settlement or bankruptcy proceedings under the Bankruptcy Act, or if a bank is placed under public administration. The NBO Terms and Conditions refer to various laws regulating such situations, including the Satisfaction of Claims Act, the Payment Systems Act and the Financial Collateral Act. If a participant is placed under public administration or into bankruptcy, Norges Bank has the right to perform close-out netting and to realise securities that the participant has put up as collateral for loans from Norges Bank, cf. Section 6.9 of the NBO Terms and Conditions. Norges Bank's procedures for handling such situations have been set out in a circular.

The Regulation on the Execution of Securities Settlements in Case of Insolvency states that financial instruments available in a settlement account at a central securities depository, and deposits in a securities settlement account at Norges Bank or another settlement bank, may be used to execute securities settlements on the same working day that insolvency procedures are initiated. Such an arrangement has been incorporated into the NBO Terms and Conditions pursuant to the Payment Systems Act, cf. Chapter 4.

Notification and information procedures have been established for cases where a participant in NBO is placed under public administration or into bankruptcy.

Q.1.1.2 What are the relevant jurisdictions for each material aspect of the FMI's activities?

Settlement finality and execution of net settlements

Section 4-2 of the Payment Systems Act and Chapter 3 of the NBO Terms and Conditions regulate how payments are to be settled and when settlements in NBO become final. The rules apply to the settlement of both individual payment orders (gross settlement) and clearings (net settlement).

Collateral for loans

Collateral requirements for loans from Norges Bank are regulated in Section 9 of the Lending Regulation and in the circular setting out the Guidelines for Collateral for Loans from Norges Bank. Norges Bank approves securities issued by both Norwegian and foreign issuers as collateral for loans. However, there are a number of requirements for securities and units put up as collateral, including registration in a central securities depository, nominal currency, issuer and credit rating. Countries of issue within the EEA are automatically approved. Where securities are issued in countries outside the EEA, the collateral provider must present legal confirmation that there are no factors that could weaken Norges Bank's position as the holder of collateral.

The securities must be registered with Verdipapirsentralen (VPS), Euroclear Bank in Belgium or Clearstream Banking in Luxembourg. Rules on legal protection and on how, and how quickly, securities may be realised will depend on the legislation of the country in which the depository is located. Norges Bank obtains regular independent legal statements on changes to national rules that may have a bearing on collateral, including the right to realise it.

Handling of banks under public administration

In the event of the bankruptcy of a foreign bank that has a branch in Norway or provides cross-border services in Norway and is a participant in NBO, the bankruptcy laws of the bank's home country will apply. Several foreign banks have an account at Norges Bank through their Norwegian branch. Most of these banks are headquartered in Sweden, Denmark or the UK. CLS Bank is headquartered in the US and has an account at Norges Bank for payments to and from banks that participate directly in the krone leg of the settlement of currency trades in CLS. Several CCPs in the trade of financial instruments that are headquartered abroad conduct cross-border operations in Norway, and have an account at Norges Bank, namely SIX x-clear AG in Switzerland, EuroCCP in the Netherlands and LCH Ltd in the UK.

Legal basis for each material aspect

Q.1.1.3 How does the FMI ensure that its legal basis (that is, the legal framework and the FMI's rules, procedures and contracts) provides a high degree of legal certainty for each material aspect of the FMI's activities in all relevant jurisdictions?

To ensure that the agreements Norges Bank enters into with participants in NBO comply with applicable laws and regulations, and that Norges Bank's interests are adequately addressed, legal experts are consulted when drawing up the agreements. On a case-by-case basis, external legal expertise may be brought in, either in Norway or abroad, to perform a special evaluation of individual institutions.

Norges Bank's system for internal control is based on three lines of defence. Responsibility for compliance with applicable laws, regulations and rules rests with the NBO system owner as the first line of defence. A central Compliance Unit is the second line of defence, advising the first line and monitoring compliance. The Internal Audit Unit is the third line of defence. Rules and procedures for NBO that impact on external parties, such as clearinghouses, are co-ordinated with these parties. In the event of major changes to the rules for NBO, the proposed changes are circulated for consultation among the parties concerned. The banking association Finance Norway will be the consultation body for the banks in some cases.

a) For an FMI that is a CSD, how does the CSD ensure that its legal basis supports the immobilisation or dematerialisation of securities and the transfer of securities by book entry?

This item is not relevant for NBO.

b) For an FMI that is a CCP, how does the CCP ensure that its legal basis enables it to act as a CCP, including the legal basis for novation, open offer or other similar legal device? Does the CCP state whether novation, open offer or other similar legal device can be revoked or modified? If yes, in which circumstances?

This item is not relevant for NBO.

c) For an FMI that is a TR, how does the TR ensure that its legal basis protects the records it maintains? How does the legal basis define the rights of relevant stakeholders with respect to access, confidentiality and disclosure of data?

This item is not relevant for NBO.

d) For an FMI that has a netting arrangement, how does the FMI ensure that its legal basis supports the enforceability of that arrangement?

The NBO Terms and Conditions regulate banks' participation in net settlements. The NBO Terms and Conditions have been drawn up in accordance with relevant legislation in the area. An agreement has been entered into between each clearinghouse and Norges Bank on the submission and settlement of clearings and on notification and processing procedures in contingency situations.

When it comes to the settlement of clearings from NICS, an agreement has been entered into between the BITS and Norges Bank on the submission of clearings and gross payment orders, etc. from NICS. Based on this agreement, NICS and Norges Bank have drawn up a contingency and notification plan for the execution of clearing and settlement in the event of operational disruption, insufficient funds, changes in banks' participation, etc. The rules on the settlement in NBO of clearings from NICS have been co-ordinated between NICS and Norges Bank and are consistent with the operating schedules for both NICS and NBO.

The Bits holds a licence from Norges Bank to operate the NICS clearing system, which is also subject to supervision by Norges Bank under Chapter 2 of the Payment Systems Act.

When it comes to the settlement of the cash leg of securities settlements, an agreement has been entered into between Norges Bank and VPS on the submission of clearings in NOK. A joint contingency and notification plan has also been drawn up for the handling of contingency situations.

NBO has separate Terms and Conditions that regulate the CCPs account management, settlement and collateralisation, including the settlement of cleared payment obligations resulting from trading in financial instruments.

e) Where settlement finality occurs in an FMI, how does the FMI ensure that its legal basis supports the finality of transactions, including those of an insolvent participant? Does the legal basis for the external settlement mechanisms the FMI uses, such as funds transfer or securities transfer systems, also support this finality?

The timing of settlement finality for payment orders in NBO is set out in Chapter 3 of the NBO Terms and Conditions, which are consistent with Section 4-2 of the Payment Systems Act on legal protection for clearing and settlement agreements.

To ensure that securities settlements can still be executed where a participant becomes insolvent, the Ministry of Finance has issued a regulation pursuant to Chapter 4 of the Payment Systems Act. This regulation means that financial instruments available in settlement accounts at a central securities depository, and deposits in securities settlement accounts at Norges Bank or another settlement bank may be used to execute securities settlements on the same working day that insolvency procedures are initiated. This applies both to financial instruments and deposits that are available in the accounts at the time insolvency procedures against the participant are initiated, and to instruments and deposits that come into these accounts after that time. This arrangement needs to be agreed with the participants in advance and has been incorporated into the NBO Terms and Conditions.

Key consideration 2

An FMI should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.

Q.1.2.1 How has the FMI demonstrated that its rules, procedures and contracts are clear and understandable?

The day-to-day procedures for settlement in NBO, including deadlines for net settlements, are set out in the operating schedule published in a circular which is available on Norges Bank’s web pages for NBO. The procedures for settlement of individual payments and clearings are set out in the NBO Terms and Conditions and the agreements with clearinghouses, including responsibilities and notification procedures in contingency situations.

Norges Bank’s procedures for handling the settlement of payments in NBO in cases where a participant is placed under public administration or into bankruptcy have been published in a separate circular. In these cases, the administrators of the insolvent bank may, with Finanstilsynet’s consent, ask Norges Bank to execute payment orders from the bank’s account and decide that all or part of the bank’s operations should be continued. In this case, the administrators must enter into a special agreement with Norges Bank on account management, collateralisation and participation in NBO.

Norway’s banks have well-developed arrangements for collaborating on joint rules, agreements and guidelines for their participation in the payment system. This collaboration also extends to the operation and development of joint infrastructure and is organised through the banking association Finance Norway and its subsidiary Bits AS. Norges Bank has two observers on Finance Norway’s Clearing and Settlement Committee (FAO).

Major changes with implications for participation in NBO are referred to the financial sector for consultation in accordance with the Public Administration Act. The consultation papers are normally sent to Finance Norway, which co-ordinates a joint statement from the banking industry. Such changes might include significant alterations to the operating schedule for NBO or amendments to the Lending Regulation or the Guidelines for Collateral for Loans from Norges Bank. Significant changes to the Norges Bank Act and other relevant laws and regulations are also released for public consultation. Norges Bank announces changes to rules and procedures in circulars published on its website. Laws and regulations are publicly available online from the Lovdata database.

Finance Norway plays a key role in co-ordinating the banking industry's own regulation of payment systems and interbank standards, partly in the form of agreements and rules on the transmission, clearing and settlement of payments. This work takes place largely through the company Bits AS which is owned by Finance Norway. The banking industry has established its own rules and guidelines on the use of its joint systems, including NICS, which processes various types of payment order from banks and delivers clearing positions to NBO several times daily.

These arrangements help give participants in NBO and the banking industry in general a good understanding of the rights, responsibilities and consequences associated with participation in NBO.

Q.1.2.2 How does the FMI ensure that its rules, procedures and contracts are consistent with relevant laws and regulations (for example, through legal opinions or analyses)? Have any inconsistencies been identified and remedied? Are the FMI's rules, procedures and contracts reviewed or assessed by external authorities or entities?

The conclusion of agreements and formulation of rules for NBO take place in consultation with legal experts at Norges Bank. Where necessary, they are supplemented with external experts. The NBO Terms and Conditions refer to relevant legislation setting out important rules on the settlement of payments at Norges Bank. In the event of changes to these rules, for example as a result of new EEA legislation, the agreements, rules and terms are updated accordingly. All participants in NBO bar CLS Bank are headquartered in an EEA member state and are therefore covered by the joint rules that apply in the area. Mew regulation is proposed to facilitate settlement finality in CLS even when Great Brittan is no longer member of the European Union/EEA.

When entering into agreements with participants in NBO that are domiciled abroad and operate in Norway through a branch or directly from abroad, an independent assessment is obtained of the legal situation in the country in which the participant is headquartered. This also applies to the central securities depositories in Belgium (Euroclear Bank) and Luxembourg (Clearstream Banking) that Norges Bank has approved for participants' collateralisation of securities for loans.

Guidelines have been issued on contract management at Norges Bank Central Banking Operations. The aim of the guidelines is to protect Norges Bank's interests as best possible. The guidelines are also intended to help Norges Bank maintain a good overview of contracts and agreements at all times and protect the Bank's reputation.

The NBO system owner has first-line responsibility for rules, procedures and agreements for NBO being consistent with relevant laws and regulations that make up the legal basis for NBO. The system owner issues an annual statement on the status of compliance.

The role of the central Compliance Unit at Norges Bank is to help ensure that the Bank does not incur public sanctions, financial loss or loss of reputation as a result of failure to comply with applicable laws, regulations and internal rules and limits. The Compliance Unit is to support the system owner and take second-line responsibility by identifying, assessing, monitoring and reporting on the risk of non-compliance with applicable rules. The head of the Compliance Unit is to consult Norges Bank's General Counsel regularly and as required on technical matters concerning compliance and other legal matters.

As a third line of defence, NBO's operations are audited by the Internal Audit Unit on the basis of a set audit plan. It is the auditor who decides which issues in NBO are to be reviewed in each audit. In addition, NBO is subject to supervision by Norges Bank's Supervisory Council and the Bank's external auditor, who may also be engaged to review specific issues in NBO.

Q.1.2.3 Do the FMI's rules, procedures and contracts have to be approved before coming into effect? If so, by whom and how?

Other than laws passed by the Storting (the Norwegian parliament), the Internal Control Regulation for Norges Bank has been issued by the Ministry of Finance, and the Lending Regulation has been approved by the Executive Board. Other rules, procedures and agreements for NBO are issued, entered into an amended on the basis of the authority structure at Norges Bank. Decision-making authority for different kinds of matter is delegated to varying degrees from the Executive Board to the Governor, heads of department, unit directors, section leaders and operational personnel. The decision-making authority for NBO at each level is set out in job descriptions. Agreements with external parties are drawn up in consultation with legal experts and are entered into on the basis of the powers awarded in job descriptions.

Key consideration 3

An FMI should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.

Q.1.3.1 How does the FMI articulate the legal basis for its activities to relevant authorities, participants and, where relevant, participants' customers?

Most relevant information concerning the legal basis for NBO is available on Norges Bank's website. Laws and regulations are otherwise available online from a publicly available database (Lovdata).

NBO has its own pages – "Norges Bank's settlement system" and "Collateral for banks' loans" – on Norges Bank's website. Applicable agreements and rules on participation in NBO are available on these pages. Examples of these rules include relevant regulations and circulars, the NBO Terms and Conditions, securities approved as collateral for banks' loans from Norges Bank, and procedures and deadlines for the realisation of collateralised securities. Access is also provided to a separate information document on the legal basis, functions and roles of NBO and related systems.

In addition, the web pages cover relevant legislation and operating procedures at a more general level, describing Norges Bank's role and mandate to promote an efficient payment system and financial stability.

Key consideration 4

An FMI should have rules, procedures, and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by the FMI under such rules and procedures will not be voided, reversed, or subject to stays.

Enforceability of rules, procedures and contracts

Q.1.4.1 How does the FMI achieve a high level of confidence that the rules, procedures and contracts related to its operations are enforceable in all relevant jurisdictions identified in key consideration 1 (for example, through legal opinions and analyses)?

Rules, procedures and agreements concerning NBO are formulated, approved and entered into in accordance with the legal basis for Norges Bank's activities as a settlement bank. The relevant jurisdictions are Norway and other EEA member states, and the US in the case of the account held by CLS Bank.

The legal basis in each jurisdiction is particularly important when it comes to contingency situations such as insolvency or realisation of collateral. In the event of the bankruptcy of a foreign bank participating in NBO through their Norwegian branch or participating in cross-border activities, the bankruptcy legislation in its home country will apply. The rules on approval of collateral, central securities depositories, etc. are intended to give Norges Bank the best possible assurance that the collateral is valid, enjoys legal protection and can be realised.

A number of requirements must therefore be met for foreign securities to be approved as collateral for banks' borrowings from Norges Bank. For example, the securities must be registered in an approved central securities depository and meet criteria for country of issue, credit rating and currency. Norges Bank may also require an independent legal opinion confirming that the laws in the country of issue meet the Bank's requirements. Norges Bank has obtained opinions on collateral laws and other relevant legislation in Belgium and Luxembourg, the countries where Euroclear Bank and Clearstream Banking are headquartered.

When considering an application to open an account from a CCP in another country or a bank headquartered in a country outside the EEA, Norges Bank will require the applicant to provide an independent legal opinions on laws in the home country relevant to the maintenance of an account at Norges Bank.

Degree of certainty for rules and procedures

Q.1.4.2 How does the FMI achieve a high degree of certainty that its rules, procedures and contracts will not be voided, reversed or subject to stays? Are there any circumstances in which an FMI's actions under its rules, procedures or contracts could be voided, reversed or subject to stays? If so, what are those circumstances?

See Q.1.1.1.

Q.1.4.3 Has a court in any relevant jurisdiction ever held any of the FMI's relevant activities or arrangements under its rules and procedures to be unenforceable?

There are no known cases of a court in any relevant jurisdiction having rejected Norges Bank's application of its rules, procedures or agreements for NBO.

Key consideration 5

An FMI conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.

Q.1.5.1 If the FMI is conducting business in multiple jurisdictions, how does the FMI identify and analyse any potential conflict-of-laws issues? When uncertainty exists regarding the enforceability of an FMI's choice of law in relevant jurisdictions, has the FMI obtained an independent legal analysis of potential conflict-of-laws issues? What potential conflict-of-laws issues have the FMI identified and analysed? How has the FMI addressed any potential conflict-of-laws issues?

Norges Bank does not conduct business as a settlement bank in multiple jurisdictions. This key consideration is not therefore considered relevant for NBO.

Assessment

The legal basis for NBO is extensive and well-founded. The banks and CCPs that participate directly in the settlement of payments are headquartered in Norway or another EEA member state. The exceptions are SIX x-clear headquartered in Switzerland and CLS Bank headquartered in the US. The legal basis of importance to Norges Bank is reflected in the agreement with each of these participants in line with what applies to other participants.

The legal basis is particularly important for the handling of contingency situations, especially in situations of insolvency and realisation of collateral that a participant has put up for loans from Norges Bank.

In a situation where a participant is insolvent, it is important that payments to and from the participant's account at Norges Bank are blocked. Procedures have therefore been established for the notification of such cases, both internally at Norges Bank and with Finanstilsynet. Norges Bank is also represented on the board of the Norwegian Banks' Guarantee Fund.

Banks and others with an account at Norges Bank pledge substantial assets as collateral for loans, mainly in the form of securities. More than two thirds of this collateral is pledged in VPS, and the remainder in the central securities depositories in Belgium (Euroclear) and Luxembourg (Clearstream). Norges Bank has set various qualitative criteria for securities to be approved as collateral. The agreements with the central securities depositories emphasise Norges Bank having control of the collateral and the right to realise it where necessary. Where assets are pledged abroad, Norges Bank therefore obtains legal statements to provide an assurance that there have been no changes in the law that might hinder the Bank's access to the collateral.

Norges Bank has internal guidelines on contract management that also apply to agreements concerning NBO. The guidelines are intended to ensure that Norges Bank's interests in the contractual relationship are protected as best possible, and that the Bank maintains a good overview of the contracts and agreements it has entered into. There is an overview of all the agreements concerning NBO, and the agreements are reviewed and updated on a set schedule.

Internal or external legal experts are involved when concluding or amending agreements concerning NBO. This provides an assurance that Norges Bank's interests will be addressed in a legally sound manner and that the agreement takes account of the formal requirements of laws, regulations and other rules. Norges Bank also engages external legal experts to provide quality assurance of agreements with suppliers. This includes the contracts with the providers of operating and system solutions for NBO, the agreements with foreign central securities depositories on collateral for loans, and the agreement on the enhanced contingency solution for NBO.

The contractual relationship with banks that have an account at Norges Bank is addressed through formal acceptance of the NBO Terms and Conditions. These are based partly on a legal framework that is constantly evolving, for example through the EEA Agreement. Material changes, changes to the operating schedule, or other operational factors of importance to those submitting clearings for settlement at Norges Bank are discussed with the banking industry before being made, often through a consultation process.
Participants in NBO are made aware of the legal basis for NBO through information from Norges Bank and matters raised with the banking industry through consultations and meetings. The legal basis for NBO is considered to be robust and is trusted by participants, clearinghouses and other external stakeholders.

Norges Bank's activities as a settlement bank offer participants a high degree of legal certainty. The principle is considered to be observed.

Principle 2: Governance

An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

In reviewing this principle, it should be noted that if an FMI is wholly owned or controlled by another entity, the governance arrangements of that entity should also be reviewed to ensure that they do not have adverse effects on the FMI's observance of this principle. As governance provides the processes through which an organisation sets its objectives, determines the means for achieving those objectives and monitors performance against those objectives, this principle should reviewed holistically with the other principles.

Special guidance issued by CPMI/IOSCO in August 2015 specifies that in cases where an FMI is operated as an internal function of the central bank, key considerations 3 and 4 are not intended to constrain the composition of the central bank's governing body or that body's roles and responsibilities.

Key consideration 1

An FMI should have objectives that place a high priority on the safety and efficiency of the FMI and explicitly support financial stability and other relevant public interest considerations.

Q.2.1.1 What are the FMI's objectives, and are they clearly identified? How does the FMI assess its performance in meeting its objectives?

The objects clause in the Norges Bank Act states: "The Bank shall be an executive and advisory body for monetary, credit and foreign exchange policy. It shall issue banknotes and coin, promote an efficient payment system domestically as well as vis-à-vis other countries, and monitor developments in the money, credit and foreign exchange markets. The Bank may implement any measures customarily or ordinarily taken by a central bank. To fulfil its purposes, the Bank may engage in any and all types of banking business and banking services."

The objective of Norges Bank's settlement system (NBO) is secure and efficient settlement of payments between banks with an account at Norges Bank. The settlement system must comply with relevant international standards and requirements for critical infrastructure.

Norges Bank identifies key focus areas and how it will achieve its objectives in three-yearly strategy documents. In the 2017-2019 strategy period~~,~~ Norges Bank aims to strengthen its contingency solutions to protect NBO against threats and to update and improve its most critical IT systems and ensure that they are robust, reliable and cost-effective.

The execution of goals and strategies is reflected in annual action plans at various levels of Norges Bank.

Q.2.1.2 How do the FMI's objectives place a high priority on safety and efficiency? How do the FMI's objectives explicitly support financial stability and other relevant public interest considerations?

NBO is the topmost level of the payment system in Norway and serves a core function in the financial infrastructure. Norges Bank's strategy states that the Bank aims to promote a robust and efficient payment system. The objective of the settlement system is secure and efficient settlement of payments between banks with an account at Norges Bank. The settlement system must comply with relevant international standards and requirements for critical infrastructure.

NBO is a critical system for society, and the Ministry of Finance has registered NBO as a "sensitive object" with the National Security Authority (NSM) pursuant to the Security Act and the Regulation on Physical Security. The background to this is the settlement system's importance for financial stability and the economy's need to perform all types of payments safely and efficiently.

Key consideration 2

An FMI should have documented governance arrangements that provide clear and direct lines of responsibility and accountability. These arrangements should be disclosed to owners, relevant authorities, participants, and, at a more general level, the public.

Governance arrangements

Q.2.2.1 What are the governance arrangements under which the FMI's board of directors (or equivalent) and management operate? What are the lines of responsibility and accountability within the FMI? How and where are these arrangements documented?

Delegation of responsibility

Section 5 of the Norges Bank Act vests executive and advisory authority at Norges Bank in the Executive Board. This means that the Executive Board is in charge of the Bank's operations and manages its resources, unless specifically stated otherwise in law. Section 10 of the Norges Bank Act gives the Executive Board powers to delegate authority to the Governor or specific committees, and the Executive Board has done so in a number of areas in the form of both general and specific powers. The second paragraph of Section 10 authorises the Executive Board to delegate authority in delimited areas to "the Bank's departments or branches, divisions and employees".

Line management is the key governance principle at Norges Bank. Line management means that all managers have clearly defined areas of responsibility and related powers. They are responsible for the results achieved and for activities being carried out within the constraints outlined in job descriptions, plans and budgets, joint processes, policy documents and other guidance, and from superior line managers.

Central Banking Operations is organised into four departments. There is also a separate General Secretariat covering the whole of Norges Bank. System ownership and operational responsibility for NBO are assigned to the Markets and Banking Services Department and are executed by the Interbank Settlement Unit (IBO).

<u>Supervision</u>

Norges Bank's Supervisory Council is appointed by the Storting. The Norges Bank Act requires the Supervisory Council to supervise the Bank's activities and ensure that the rules governing the Bank's operations are observed. The Supervisory Council engages an external auditor. Deloitte AS has served as the external auditor and audited the Bank's annual accounts since 2010.

Norges Bank has a statutory Internal Audit Unit which reports to the Executive Board and its Audit Committee, which consists of three external members of the Executive Board. Internal Audit is charged with assessing the Bank's internal control, procedures and other matters that are important for the Bank's operations, based partly on the Regulation on Risk Management and Internal Control at Norges Bank. Internal Audit performs regular audits of NBO.

A separate Governance, Risk and Compliance Unit (GRC) within Central Banking Operations is responsible for overseeing the governance system, operational risk management and compliance. GRC is an advisory and confirmatory body for the Governor and helps ensure that Central Banking Operations does not incur public sanctions, financial loss or loss of reputation as a result of failure to comply with applicable laws, regulations and internal rules and limits. GRC is also to identify, assess, monitor and report on the risk of non-compliance with rules that Norges Bank is required to observe, and to advise on following up this risk. The mandate for GRC is laid down by the Governor.

<u>Reporting</u>

The Executive Board, the Governor and other line managers are informed about NBO's settlement activities through regular management reporting, which also covers risk assessments, incidents and compliance. Monthly reports are also prepared and distributed to the Governor and line management. A separate annual report is submitted to the Executive Board for information. The submission of this report to the Executive Board is supplemented with a presentation of key issues, where comments and views are invited from the members of the Executive Board. The annual report is similarly submitted to the Supervisory Council.

Q.2.2.2 For central bank-operated systems, how do governance arrangements address any possible or perceived conflicts of interest? To what extent do governance arrangements allow for a separation of the operator and oversight functions?

The system owner is responsible for NBO being operated, managed and developed in accordance with principles and recommendations for systemically important settlement systems. This includes issuing the NBO Terms and Conditions, and approving banks' requests to open accounts and declarations of collateral.

In addition to processes taken care of by the control bodies, separate oversight of NBO has been established in the Financial Infrastructure Unit. This oversight is intended to help ensure that its development and operation promote an efficient payment system, that NBO meets at least the same standards of efficiency, security and robustness as licensed interbank systems, and that international recommendations such as the PFMIs from CPMI-IOSCO are observed. Special processes have been established for carrying out this oversight. The system owner and the overseer are located organisationally in two different units of Norges Bank. Any disputes are settled by line management.

Q.2.2.3 How does the FMI provide accountability to owners, participants and other relevant stakeholders?

Internally within Norges Bank, the system owner reports to management on settlement activities in NBO through monthly, quarterly and annual reports. Reporting to the Executive Board takes the form of semi-annual management reports and annual reports, while reporting to the Supervisory Council is through the annual reports.

Participants in NBO are sent daily reports on settlement activities, monthly reports and annual reports. Other external stakeholders have access to monthly and annual reports via NBO's web pages. Information about NBO is also provided to participants and other stakeholders through ongoing contact and meetings, for example in connection with joint contingency exercises.

Disclosure of governance arrangements

Q.2.2.4 How are the governance arrangements disclosed to owners, relevant authorities, participants and, at a more general level, the public?

Information about the organisation and management of Norges Bank and the delegation of responsibilities at the Bank is available on the Bank's website and in its annual report. This includes the composition and tasks of the Bank's Executive Board and Supervisory Council, and the organisation of the Bank's departments and units, including settlement activities in NBO.

There are separate web pages on the settlement system and banks' collateral for loans, where participants in NBO, other external stakeholders and the general public can find relevant information. These pages also contain contact details for direct enquiries at operational level.

Key consideration 3

The roles and responsibilities of an FMI's board of directors (or equivalent) should be clearly specified, and there should be documented procedures for its functioning, including procedures to identify, address, and manage member conflicts of interest. The board should review both its overall performance and the performance of its individual board members regularly.

Roles and responsibilities of the board

Q.2.3.1 What are the roles and responsibilities of the FMI's board of directors (or equivalent), and are they clearly specified?

The Executive Board's roles and responsibilities are set out in the Norges Bank Act, which vests executive and advisory authority in the Executive Board. The Executive Board is in charge of the Bank's operations and manages its resources. It is responsible for the sound organisation of the Bank's operations, and for establishing satisfactory frameworks, objectives and principles for the Bank's operations. The Executive Board is to ensure that the Bank's operations, including accounting and asset management, are subject to sound governance and control. It is also to supervise the Bank's administration and other activities.

The Executive Board produces multi-year strategies for Norges Bank and aims to achieve the objectives set for the Bank's operations with particular emphasis on price stability, financial stability and creating value through investment management.

The Executive Board issues annual plans and prepares budgets for the coming year. Through reports from management and its day-to-day work on matters arising, the Board monitors results, expenditure, risk management and internal control. It also prepares an annual report and annual financial statements.

The Norges Bank Act regulates the relationship between Norges Bank and government authorities. The organisation of Norges Bank is set out in the governance model for Norges Bank which is considered by the Executive Board.

Q.2.3.2: What are the board's procedures for its functioning, including procedures to identify, address and manage member conflicts of interest? How are these procedures documented, and to whom are they disclosed? How frequently are they reviewed?

The Executive Board has eight ordinary members appointed by the King in Council. The Governor and two Deputy Governors are appointed to full-time positions for a term of six years. The Governor chairs the Executive Board, while the First Deputy Governor serves as deputy chairman. Two members are elected by and from among the Bank's employees to supplement the Executive Board when matters of an administrative nature are discussed – in other words, matters that primarily concern the Bank's internal management.

The Ministry of Finance has issued a regulation concerning the relationship of Norges Bank's Executive Board with other credit institutions and enterprises. In addition to rules applying to all members of the Board, the regulation contains special provisions for the Governor and Deputy Governors and for the other members.

The Executive Board has issued rules of procedure concerning its tasks and working processes, and ethical principles for its external members. The rules of procedure and ethical principles are publicly available on Norges Bank's website.

The rules of procedure require a vote to be taken whenever a voting member so requests. More than half of the voting members must vote in favour of a decision for it to be valid. This means that at least six members must be present for the Executive Board to be quorate for an administrative matter, and at least four members for all other matters.

Q.2.3.3: Describe the board committees that have been established to facilitate the functioning of the board. What are the roles, responsibilities and composition of such committees?

Three committees have been set up to assist the Executive Board in its work concerning Central Banking Operations, including settlement activities.

The *Audit Committee* is a preparatory and advisory working committee for the Executive Board which is to help strengthen and streamline the Executive Board's work on oversight, supervision and monitoring of financial reporting, risk management, compliance, internal control and internal auditing. The Audit Committee consists of three of the Board's five external members. The Executive Board has issued a mandate for the committee.

The *Remuneration Committee* is a preparatory body for the Executive Board which is to contribute to thorough and independent consideration of matters concerning the Bank's pay and remuneration arrangements. The Committee consists of two of the Board's five external members. The Executive Board has issued a mandate for the committee.

The *Risk and Investment Committee* is a preparatory and advisory working committee for the Executive Board which is to help strengthen and streamline the Board's work on risk management, the rules and limits for real estate management and major investment decisions. The committee has three members. It is chaired by one of the Deputy Governors, while the other two members are appointed from among the Executive Board's external and alternate members.

Review of performance

Q.2.3.4: What are the procedures established to review the performance of the board as a whole and the performance of the individual board members?

The Executive Board's rules of procedure require it to discuss its role and working processes annually. Procedures have not been established for the supervision of individual members of the Executive Board.

Norges Bank's Supervisory Council is appointed by the Storting to oversee the Bank's operations and compliance with the rules for its operations. The Supervisory Council shall in this respect supervise the Executive Board to ensure that the Executive Board's management and control of the Bank's administration and operations are satisfactory and that appropriate procedures have been established so that the Bank's activities are conducted in accordance with legislation, agreements, decisions and other regulatory frameworks. The Executive Board's exercise of discretionary authority under the Norges Bank Act is not subject to the Supervisory Council's supervision.

The Supervisory Council appoints the external auditor, adopts the Bank's annual accounts and, on the proposal of the Executive Board, approves the Bank's budget. At least once a year, the Council is to submit to the Storting a statement on the minutes of the Executive Board's meetings and its supervision of the Bank.

Key consideration 4

The board should contain suitable members with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of non-Executive Board member(s).

Q.2.4.1: To what extent does the FMI's board have the appropriate skills and incentives to fulfil its multiple roles? How does the FMI ensure that this is the case?

The Executive Board has eight members appointed by the King in Council. The Governor and First Deputy Governor are its chairman and deputy chairman, respectively. The Second Deputy Governor is a member of the Executive Board with special responsibility for matters relating to investment management for the Government Pension Fund Global at Norges Bank Investment Management. The three internal members of the Executive Board are appointed for six years. The five external members are appointed for four years such that two or three members may step down every other year. The Bank's employees elect two members from staff to supplement the Executive Board when matters of an administrative nature are discussed.

Members of the Executive Board need to deal with the full range of Norges Bank's activities and are not normally appointed specifically on the basis of skills relating to the Bank's role as a settlement bank. There are therefore no special mechanisms or incentives to recruit members of the Executive Board with expertise in payment systems and settlement services. Members with a background in the bank sector may nevertheless be familiar with the payment system and NBO. The preparation of semi-annual management reports and annual reports for NBO gives the Executive Board relevant information about settlement activities and an opportunity to discuss related issues.

Q.2.4.2: What incentives does the FMI provide to board members so that it can attract and retain members of the board with appropriate skills? How do these incentives reflect the long-term achievement of the FMI's objectives?

See Q.2.4.1.

Q.2.4.3: Does the board include non-executive or independent board members? If so, how many?

The five external members are considered independent in this context as they have no direct links to Norges Bank and meet the requirements for independence of government authorities set out in Section 6 of the Norges Bank Act.

Q.2.4.4: If the board includes independent board members, how does the FMI define an independent board member? Does the FMI disclose which board member(s) it regards as independent?

Members of the Executive Board are appointed by the King on the recommendation of the Ministry of Finance. The Norges Bank Act contains requirements that members and alternates must not also hold specific positions in government or the Storting. The Governor and the two Deputy Governors constitute the topmost executive management tier at Norges Bank. The Governor is in charge of the Bank's administration and implementation of decisions. There are no special requirements or restrictions for members of the Executive Board in relation to NBO.

Membership of the Executive Board is public knowledge through the publication of appointments, Norges Bank's annual report and information on the Bank's website.

Information is also provided on where external members are employed and on their previous work experience.

Key consideration 5

The roles and responsibilities of management should be clearly specified. An FMI's management should have the appropriate experience, a mix of skills, and the integrity necessary to discharge their responsibilities for the operation and risk management of the FMI.

Roles and responsibilities of management

Q.2.5.1: What are the roles and responsibilities of management, and are they clearly specified?

The roles and responsibilities of Norges Bank's management are set out in the Norges Bank Act, regulations and decisions of the Executive Board.

The Executive Board may delegate authority to the Governor or special committees, and the Executive Board has done so in a number of areas in the form of both general and specific powers. The Executive Board may also delegate authority in delimited areas to the Bank's departments or branches, divisions and employees, subject to more specific rules.

Delegation instructions must meet certain general requirements. They must:
- be in writing so that they can be documented subsequently
- specify the scope and degree of authority delegated
- specify the terms (rules) associated with the authority

Norges Bank Central Banking Operations is organised into five departments. Secretariat functions covering the whole of Norges Bank are organised in a separate department. The organisation chart is available on the Bank's intranet down to section level.

System ownership and operational responsibility for NBO are assigned to the Interbank Settlement Unit (IBO) under the Financial Stability Department. IBO is the system owner for NBO and is responsible for the core processes of account management for banks, settlement of payments in NBO, and banks' collateral for loans from Norges Bank. This responsibility also includes procuring, maintaining, and further developing the technical systems for NBO. In addition, the unit is responsible for central government's accounts at Norges Bank. Responsibility for procuring, maintaining, and further developing the current operating solutions for the IT systems is assigned to the ICT Unit, which is part of the Markets and IT Department.

The key features of the organisation and management of Norges Bank are presented in more detail on Norges Bank's website: http://www.norges-bank.no/en/about/Organisation/.

Q.2.5.2: How are the roles and objectives of management set and evaluated?

Norges Bank's Executive Board adopts three-year strategies setting out the overall objectives and priorities for the Bank. The departments also prepare annual action plans and associated budget proposals. The budget for each year is considered by the Executive Board and approved by the Supervisory Council. The approved budgets are communicated to heads of department through allocation letters from the Governor.

Performance against objectives is evaluated through regular management reporting to senior management, the Executive Board and the Supervisory Council. NBO's settlement activities are included in this reporting and evaluation.

Experience, skills and integrity

Q.2.5.3: To what extent does the FMI's management have the appropriate experience, mix of skills and the integrity necessary for the operation and risk management of the FMI? How does the FMI ensure that this is the case?

System ownership of NBO is about administering operational responsibility for the operation and development of the settlement system. When appointing the management team for the settlement system, importance is attached to knowledge and experience relevant to this area of responsibility. Performance is evaluated on the basis of action plans, budget follow-up and ongoing governance.

Q.2.5.4: What is the process to remove management if necessary?

All positions at Norges Bank are regulated by a contract of employment reflecting legislation and internal rules.

Managers at Norges Bank may have their authority and responsibilities revised within the bounds of their contract and general employment law. With some forms of misconduct, such as serious breaches of ethical guidelines, action may be taken under the Bank's own Guidelines on Response and Procedures in Case of Misconduct, etc.

Key consideration 6

The board should establish a clear, documented risk-management framework that includes the FMI's risk-tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision making in crises and emergencies. Governance arrangements should ensure that the risk-management and internal control functions have sufficient authority, independence, resources, and access to the board.

Risk management framework

Q.2.6.1: What is the risk management framework that has been established by the board? How is it documented?

The risk management framework is based on the Norges Bank Act and the Regulation on Risk Management and Internal Control at Norges Bank (the Internal Control Regulation). Based on the Internal Control Regulation, the Executive Board has adopted general principles for risk management at Norges Bank and specific principles for risk management in Central Banking Operations. The latter principles draw a distinction between *financial risk* and *enterprise risk.*

Financial risk consists here of market, credit, counterparty and liquidity risk, while *enterprise risk* consists of risks that do not come under the definition of financial risk, such as operational, security, compliance, legal, regulatory and fraud risks.

Based on the Executive Board's principles, the Governor has issued guidelines for the management of enterprise risk in Central Banking Operations. A framework has also been introduced for managing enterprise risk, which sets out procedures for identifying, evaluating, managing and monitoring risks. Risk assessments are to be carried out by line management with support from the risk management function and other relevant support functions.

The system owner for NBO is responsible for regular risk analyses for NBO systems and for reporting the overall risk profile for NBO to management. This responsibility is set out in their job description and policy documents. Other units that have relevant expertise, such as in ICT security and security risks, are to identify any such risks that are important for NBO and inform the system owner about them.

The second line of defence is provided by a separate risk management and compliance function. This function is to contribute to efficient governance, control and compliance in Central Banking Operations and has a right and a duty to report independently to the Executive Board on matters concerning compliance and risk management. This supplements existing reporting lines in special cases or where the ordinary reporting lines cannot be used.

Internal Audit is to support the Executive Board in following up Norges Bank's activities by providing independent assessments and advice on the Bank's governance, risk management and internal control (third line of defence).

Reporting on enterprise risk takes place quarterly to management and twice a year to the Executive Board as an integral part of management reporting.

Q.2.6.2: How does this framework address the FMI's risk tolerance policy, assign responsibilities and accountability for risk decisions (such as limits on risk exposures), and address decision-making in crises and emergencies?

The principles and guidelines for the management of enterprise risk include risk tolerance limits and specify at what level different risk levels can be accepted.

The framework sets out categories for the causes of risk and criteria for assessing risk. It also clarifies how security risk is to be integrated into the other risk assessments, and states that risk in support processes is to be assessed in the light of the consequences for core functions, including NBO.

Decision-making in crises and contingency situations is based on the powers granted to line management after consulting relevant specialist units based on the organisation of crisis management at Norges Bank.

Q.2.6.3: What is the process for determining, endorsing and reviewing the risk management framework?

The Internal Control Regulation requires the Executive Board to evaluate its work and competence with regard to risk management at least annually. The framework for managing enterprise risk in Central Banking Operations is to be assessed annually and further developed in line with external requirements, internal needs, and developments in the field.

Authority and independence of risk management and audit functions

Q.2.6.4: What are the roles, responsibilities, authority, reporting lines and resources of the risk management and audit functions?

Under its mandate, the central Governance, Risk and Compliance Unit (GRC) is responsible for maintaining an overview of material risks and ensuring that the Governor is kept adequately informed at all times about the Bank's risk situation. GRC is also responsible for the Bank's risk management framework being implemented and further developed in accordance with external and internal requirements. The unit checks that principles and guidelines for risk management are complied with.

Under the Norges Bank Act, the Internal Control Regulation and other guidance, the Internal Audit Unit is to assess the Bank's internal control, procedures and other aspects that are important to the Bank's operations. Internal Audit's role is to support the Executive Board in following up Norges Bank's operations by providing independent assessments and advice on the Bank's governance, risk management and internal control. Internal Audit bases its assessments and advice on observations from audit projects and knowledge from monitoring the Bank's operations. Under the Internal Control Regulation, the director of Internal Audit is to submit a report on risk management and internal control to the Executive Board at least annually.

Under the Norges Bank Act, the Supervisory Council is to supervise the Bank's activities and ensure that the rules governing the Bank's operations are observed. This includes checking whether the Executive Board exercises satisfactory management and control of the Bank's administration and operations, and whether there are appropriate procedures to ensure compliance with applicable laws, agreements, decisions and other rules. The Supervisory Council has its own rules of procedure and strategy.

Q.2.6.5: How does the board ensure that there is adequate governance surrounding the adoption and use of risk management models? How are these models and the related methodologies validated?

The Internal Control Regulation requires the Executive Board to ensure that Norges Bank has adequate systems for risk management and internal control, and to evaluate its work and its expertise in relation to the Bank's risk management and internal control at least annually. In its risk management, Norges Bank employs methods and models that comply with international standards and recommendations in the field. Norges Bank has staff with expertise in models for risk management, and the risk management framework is based on best practice in the field internationally.

Reporting to the Executive Board on all risks Norges Bank is exposed to takes places twice a year as an integral part of management reporting. As part of this reporting each year, the Executive Board is to receive the Governor's annual summary evaluation of internal control.

Key consideration 7

The board should ensure that the FMI's design, rules, overall strategy, and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public.

Identification and consideration of stakeholder interests

Q.2.7.1: How does the FMI identify and take account of the interests of the FMI's participants and other relevant stakeholders in its decision-making in relation to its design, rules, overall strategy and major decisions?

Important aspects of the rules for settlement activities, such as requirements for system solutions, account terms and contingency solutions, are formulated after obtaining opinions from relevant players in the financial sector. This takes place through reference groups, special meetings, formal consultations or a combination of these. Norges Bank has set up a continuity forum with participation from key external players to discuss robustness and contingency measures for key infrastructure and conduct joint exercises. There is also an annual meeting between the management of the central bank and the management of the banking association Finance Norway, where topical issues can be raised.

Q.2.7.2: How does the board consider the views of direct and indirect participants and other relevant stakeholders on these decisions; for example, are participants included on the risk management committee, on user committees such as a default management group or through a public consultation? How are conflicts of interest between stakeholders and the FMI identified, and how are they addressed?

Matters of strategic, operational or financial importance to participants in the settlement system, such as the procurement of system and operating solutions, are submitted to the Executive Board for consideration. The views of external stakeholders will be presented here. Finance Norway will often be the consultative body on behalf of the banks and itself consider the need to involve banks in the matter. Where there are conflicts of interest between the system owner for NBO and external stakeholders, this will be made clear in the presentation of the matter, which will be decided by the Executive Board under its powers under the Norges Bank Act.

Disclosure

Q.2.7.3: To what extent does the FMI disclose major decisions made by the board to relevant stakeholders and, where appropriate, the public?

The Executive Board's decisions on key issues will be made known to relevant stakeholders directly through meetings and consultation papers, and otherwise through news items and documentation made available to the public on Norges Bank's website. Examples of such matters include the procurement of system and operating solutions and changes to the rules on deposits and loans at Norges Bank.

Assessment

Norges Bank has defined the following qualitative objectives for the settlement system:

> The purpose of Norges Bank's settlement system (NBO) is to ensure secure and efficient settlement of payments between banks with an account in NBO. The settlement system must comply with relevant international standards and requirements for critical infrastructure.

NBO is a critical system for the economy, and the Ministry of Finance has registered NBO as a "Critical National Infrastructure" with the National Security Authority (NSM) pursuant to the Security Act and the Regulation on Physical Security. Security measures are assessed regularly and in connection with purchases from external suppliers of system and operating solutions, the ongoing follow-up of suppliers and the day-to-day management of Norges Bank's settlement system.

Norges Bank has a documented governance structure for NBO with clear lines of responsibility. The governance structure is familiar to owners, relevant authorities, participants and the general public through regular reports from Norges Bank and information available on its website.

The Norges Bank Act vests executive and advisory authority at the Bank in the Executive Board. The Executive Board's roles and responsibilities are clearly set out in laws, regulations and decisions, and there are documented procedures for the execution of the board's tasks. The Supervisory Council, which is appointed by the Storting, oversees the Bank's operations and compliance with applicable rules.

The Executive Board has a broad area of responsibility, and members are appointed on the basis of their expertise in the central bank's various core areas. There are no specific requirements for expertise and experience in payment systems and settlement activities. Information on settlement activities and the risk that the settlement system entails for Norges Bank is submitted to the Executive Board regularly through the annual report for NBO, semi-annual management reports with risk assessments, and individual cases, such as major purchases of system and operating solutions for NBO which may require a budget decision.

This material keeps the Executive Board informed about settlement activities, the scope and types of settlement, operational disruptions, contingency exercises and the risks associated with NBO. This provides an opportunity to raise matters that the Executive Board should pay particular attention to, and gives the Executive Board a chance to ask follow-up questions.

The roles and responsibilities of the management of the settlement system at every level are set out clearly in rules and policy documents. Norges Bank as central bank has a much broader area of responsibility than the operation and development of the settlement system and must also emphasise considerations other than those covered by this principle, in particular key considerations 3 and 4.

On the basis of these governance arrangements, established reporting procedures and contact with participants in NBO and other external stakeholders, Principle 2 is considered to be observed.

Principle 3: Framework for the comprehensive management of risks

An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.

In reviewing this principle, an assessor should consider how the various risks, both carried by and posed by the FMI, relate to and interact with each other. As such, this principle should be reviewed holistically with the other principles.

Key consideration 1

An FMI should have risk-management policies, procedures, and systems that enable it to identify, measure, monitor, and manage the range of risks that arise in or are borne by the FMI. Risk-management frameworks should be subject to periodic review.

Risks that arise in or are borne by the FMI

Q.3.1.1: What types of risk arise in or are borne by the FMI?

Below are examples of the types of risk that may arise in NBO based on the definitions of risk in the recommendations from CPMI-IOSCO in their *Principles for Financial Market Infrastructures*:

Credit risk: The risk associated with taking collateral for loans – the value lent by Norges Bank is larger than the value of the collateral.

Liquidity risk: The risk that participants in NBO do not receiving payments as expected due to absent or delayed settlement for which Norges Bank is responsible.

Operational risk: The risk that errors in the operation of infrastructure, software errors or human error affects NBO's ability to provide its usual services.

Legal risk: The risk of non-compliance with laws, regulations, guidelines, contracts etc., and that contracts are finalised in such a way that they are not legally binding.

Systemic risk: The risk that problems in one part of the central infrastructure spread to other key parts of the infrastructure resulting in payments that are unable to be settled in NBO in accordance with the operating schedule.

Reputational risk: The risk of damage to Norges Bank's reputation.

Risk management policies, procedures and systems

Q.3.1.2: What are the FMI's policies, procedures and controls to help identify, measure, monitor and manage the risks that arise in or are borne by the FMI?

<u>Norges Bank's risk management framework</u>

The Executive Board has issued principles for risk management based partly on the Internal Control Regulation.

The Governor has approved guidelines for risk management, and the director of GRC has issued a *Framework for the Management of Enterprise Risk in Central Banking Operations*. The framework builds on standards for operational risk management from the likes of COSO and ISO, and Norwegian security standards.

The framework provides a methodology for identifying, assessing, responding to and following up risks. Risk identification and assessment are to be performed quarterly and in the event of:

- Serious incidents, including failures of established controls
- Start-up of major projects
- Major changes in Central Banking Operations' duties, IT systems or other infrastructure, or organisation structure
- Major changes to regulatory conditions
- Significant external events that may affect Central Banking Operations

The risk assessment will be performed by departmental line management those responsible for processes. A risk owner will be defined for each risk. Risk management is performed in four ways:

- Risk acceptance
- Risk reduction
- Risk transference either in full or in part to an external party
- Risk avoidance

Norges Bank's Internal Audit Unit reports to the Executive Board and has the main purpose of helping Norges Bank achieve its objectives by checking that there is adequate and effective management of material risks in the organisation, and that appropriate and satisfactory internal controls are conducted.

<u>Separate risk database for NBO</u>

NBO's risk database is based on the framework for risk management and describes relevant risks categorised by core process and cause. Risks relating to ICT security and security risks are assessed separately by the specialist units in these areas. Risk assessments are also obtained from NBO's critical service providers and system suppliers and integrated into the risk assessment for NBO.

Risks for NBO and changes in the risk profile are compiled in a joint report to management following the end of each quarter.

Q.3.1.3 What risk management systems are used by the FMI to help identify, measure, monitor and manage its range of risks?

Risk management for NBO involves the use of a variety of manual and automated systems. The following provides an overview of these systems based on the risk categories outlined in the PFMIs.

Credit risk: Norges Bank ensures that banks can access an adequate supply of credit against collateral approved by Norges Bank. The Executive Board issues guidelines for collateral for loans that contain limits for the market and credit risk that the Bank will accept. Banks have continuous access to information about their available credit in NBO. Any changes during the day, including as a result of the daily updating of interest and exchange rates, are monitored continuously. NBO's core system includes controls to ensure that Norges Bank does not issue unsecured loans to participants. An unsecured loan position may nevertheless arise following a sharp drop in market values if a bank has already borrowed up to its limit.

Legal risk: Norges Bank has contracts and agreements with all participants, external suppliers and partners for NBO. Importance is placed upon all new contracts being enforceable under relevant laws, regulations and guidelines. In addition to formal contracts, Norges Bank also has joint contingency procedures with other FMIs, such as NICS and VPS. These cover routines for dealing with and notifying of failures, including deadlines. The contingency procedures are based on internal procedures at the external party. These are often manual and thus entail an additional risk of error. The risk of non-compliance with rules, contracts and guidelines may therefore increase in a contingency situation.

Operational risk: Norges Bank has formulated internal contingency procedures for identified risks that require individual attention. These contingency procedures contain a high level of detail in order to minimise the risk of operational errors, caused in part by the use of manual routines.

ICT operations in NBO have been outsourced to the external service provider EVRY Norge AS. The operational deliverables from EVRY are continually reported to identify, measure and control the risk of operational errors and non-conformances in NBO. This includes operational reports and the registration of incidents and non-conformance. Evry also conducts an annual risk assessment associated with the services provided to NBO, and submits the report to Norges Bank.

A thorough and systematic testing programme is conducted before new or upgraded system solutions are brought into operation. This can also reveal elements of risk in the system solution.

Deliberate and undesirable attacks on key IT systems – cyber risk – have become a growing threat in recent years. This has contributed to increased operational risk during the last few years.

Liquidity risk: Participants may face liquidity risks if payments are not settled as scheduled in NBO. In the event of serious disruption in NBO and in the prospect of persistent problems, an enhanced contingency solution may be used to settle payments on the same day. If a bank has financial or technical problems, other banks may set up bilateral exposure limits and may suspend both ingoing and outgoing payments.

Risk relating to interdependencies with others: See key consideration 3.

Q.3.1.4: How do these systems provide the capacity to aggregate exposures across the FMI and, where appropriate, other relevant parties, such as the FMI's participants and their customers?

The risk management system aims to collate all risks relating to the settlement system, including risks resulting from critical service providers, and produce an aggregated report each quarter. A single risk assessment for the settlement system is prepared on the basis of the various individual risks.

Review of risk management policies, procedures and systems

Q.3.1.5: What is the process for developing, approving and maintaining risk management policies, procedures and systems?

The risk management framework is administered, followed up and can be changed by the central Governance, Risk and Compliance Unit (GRC). Changes to the framework are established at different organisational levels of Norges Bank on the basis of delegated powers. The framework must be evaluated on an annual basis.

Q.3.1.6: How does the FMI assess the effectiveness of risk management policies, procedures and systems?

The current risk management framework has been designed in consultation with the various parts of Norges Bank, including the NBO system owner. It has been in use since 2014 and is updated at least once a year. The framework is currently considered to perform well for NBO.

Q.3.1.7: How frequently are the risk management policies, procedures and systems reviewed and updated by the FMI? How do these reviews take into account fluctuation in risk intensity, changing environments and market practices?

The general principles for risk management at Norges Bank require risk management to be a continuous process designed to detect, assess, manage and follow up risk in such a way that it remains within the Executive Board's tolerance limit. Risk management processes are to be updated regularly and developed further so that they meet the requirements of the Internal Control Regulation and internationally recognised standards.

The framework for managing risk in Central Banking Operations is assessed annually and developed further in line with external requirements, internal needs and developments in the field.

Key consideration 2

An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI.

Q.3.2.1: What information does the FMI provide to its participants and, where relevant, their customers to enable them to manage and contain the risks they pose to the FMI?

A number of terms and conditions must be met for participants in NBO to have their payment orders settled, including requirements for the format of the payment order and to have sufficient funds in their accounts. These requirements are set out in the Terms and Conditions for Account Management, Collateralisation and Participation in NBO, which all participants must accept. The NBO Terms and Conditions also specify the participants' responsibilities.

The daily operating schedule for NBO shows the times that scheduled settlements take place. This information is available on the web pages for NBO.

Each participant in NBO has access to its account through an Internet-based solution (NBO Online) and can monitor movements in its own account in NBO during the day. The information for each account is continuously updated, including information on available liquidity. This enables participants to manage their liquidity risk. Participants may also submit payment orders for settlement at a later time.

The NBO Terms and Conditions contain user management requirements for the use of NBO Online by each participant. Each participant is to have a security officer who is authorised to manage the participant's users of NBO Online, and there is a requirement that the number of users must be restricted to those who actively use the solution or will need to use it in a contingency situation.

Q.3.2.2: What incentives does the FMI provide for participants and, where relevant, their customers to monitor and manage the risks they pose to the FMI?

Each participant agrees to observe the rules and procedures that apply to accounts at Norges Bank and participation in NBO by signing both a declaration of collateral and a request to open an account, deposit collateral and participate in NBO. The reputation of Norges Bank or other participants may be harmed if a participant breaches its obligations in a way that inflicts risk for NBO, such as poor liquidity management resulting in insufficient funds for the settlement of a clearing.

Norges Bank may impose fees to make it clear to participants that some types of incident are particularly undesirable, including incorrect submission of payment orders to Norges Bank, failure to repay Scandinavian Cash Pool loans during the day, holding loans in excess of the limit at the end of the day, and pledging securities that no longer have collateral value following maturity or withdrawal. If a participant defaults significantly on its obligations under the NBO Terms and Conditions, Norges Bank may suspend or terminate its account.

Q.3.2.3: How does the FMI design its policies and systems so that they are effective in allowing their participants and, where relevant, their customers to manage and contain their risks?

The NBO systems are designed to provide real-time settlement with high levels of efficiency and security. This ensures predictability for participants and their customers. The division of responsibilities between Norges Bank and participants in NBO is clarified in the rules and guidelines for NBO. Participants have direct access to information from their accounts in NBO through statements of account via SWIFT and through NBO Online. This also enables them to monitor the status of the securities they have pledged as collateral for loans from Norges Bank and the collateral value these have in NBO.

Key consideration 3

An FMI should regularly review the material risks it bears from and poses to other entities (such as other FMIs, settlement banks, liquidity providers, and service providers) as a result of interdependencies and develop appropriate risk-management tools to address these risks.

Material risks

Q.3.3.1: How does the FMI identify the material risks that it bears from and poses to other entities as a result of interdependencies? What material risks has the FMI identified?

External parties that may pose risks to NBO are participants (banks, CCPs, CLS Bank, central banks), those submitting clearings for settlement in NBO (NICS, VPS, CCPs) and external suppliers of ICT operating services, system solutions, and data on collateralisation and financial data for the calculation of market values for collateral and available credit.

Risk associated with interdependencies with other entities

Risks to NBO and other parts of the infrastructure are identified partly through regular risk assessments of NBO, experience from everyday operations, non-conformances and incidents, clarification of procedures and responsibilities when drawing up contracts with other parties, and meetings and other contact with other parties on operational matters. Various risk scenarios are described as contingency procedures, both internally and with other parties. Various measures were explored together with the banks in 2014 for collaboration on dealing with extensive disruption in the financial infrastructure. In 2015, Norges Bank founded the NBO Continuity Forum, consisting of a selection of key players in the financial infrastructure, including the largest banks, NICS, Bits and VPS. One main aim of this forum is to prepare for interdependencies between NBO and other FMIs in contingency and crisis situations, develop contingency plans and hold exercises in managing various types of contingency situations that also affect NBO.

Several elements of the risk analysis for NBO are based on risks identified through interdependencies of these kinds. This includes updating new versions of third-party software, the need for co-ordination between suppliers in this context, and disruption in NICS that could affect banks' access to NBO Online so that they are unable to monitor their own accounts or register payment orders.

Risk associated with disruption at external suppliers

The most important risks identified for NBO as a result of disruption at external suppliers of ICT operating services and system solutions have been incorporated into the risk analysis for NBO. Such risks are identified partly on the basis of risk assessments received from critical suppliers.

Q.3.3.2: How are these risks measured and monitored? How frequently does the FMI review these risks?

The risks that arise through interdependencies between NBO and other entities are discussed and assessed in connection with the revision of the NBO Terms and Conditions, regulatory changes, updates of contingency and notification procedures for clearinghouses, and the ongoing collaboration with other key players in the financial infrastructure and external suppliers on risk, contingency solutions and exercises.

The risks associated with interdependencies with other entities are assessed regularly when the risk assessment for NBO is reviewed and updated each quarter, and when making changes to procedures or system solutions affecting multiple parties.

Risk management tools

Q.3.3.3: What risk management tools are used by the FMI to address the risks arising from interdependencies with other entities?

The Internal Control Regulation sets out requirements for risk management. In line with these requirements, internal principles have been stipulated by the Executive Board, and guidelines by the Governor. Based on these policy documents, the director of GRC establishes the framework for risk management in Central Banking Operations. This framework builds on standards for operational risk management from the likes of COSO and ISO, and Norwegian security standards.

Risks arising from interdependencies with other entities are managed using contracts, written procedures, joint contingency procedures, contingency exercises, and discussions and clarifications at meetings, including on the NBO Continuity Forum. Before new or upgraded ICT solutions are taken into use, thorough testing is conducted together with external parties where relevant. IBO has developed an extensive framework for testing such changes with set test scenarios.

When it comes to international players such as SWIFT and CLS Bank, the authorities where these organisations are headquartered take the lead in supervising their operations. The Belgian central bank is the oversight authority for SWIFT, while the Federal Reserve Bank of New York is the supervisory authority for CLS Bank. Norges Bank does not conduct its own risk assessments of SWIFT or CLS Bank, but participates in the central bank oversight committee that oversees the operations of CLS. SWIFT is the main channel for payment orders and other communication between banks and NBO, and Norges Bank conducts detailed testing of new versions of software and other infrastructure for SWIFT before they are taken into use.

Q.3.3.4: How does the FMI assess the effectiveness of these risk management tools? How does the FMI review the risk management tools it uses to address these risks? How frequently is this review conducted?

The effectiveness of risk management emerges primarily through the Bank’s own experience of following up incidents and disruptions in the ongoing operation of NBO, and through exercises in the use of contingency procedures and backup solutions. Experience gleaned by other entities responsible for critical infrastructure both in Norway and abroad may also help enhance risk management at Norges Bank. As part of the quarterly updates and the annual main review of the risk analysis for NBO, there is also an assessment of whether risk management is appropriate and effective. Any adjustments are incorporated.

Contingency procedures are continuously revised and improved in the light of experience from incidents, disruptions and exercises.

There is also regular internal and external auditing of NBO, which often also covers risk management.

Key consideration 4

An FMI should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. An FMI should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, an FMI should also provide relevant authorities with the information needed for purposes of resolution planning.

Scenarios that may prevent an FMI from providing critical operations and services

Q.3.4.1: How does the FMI identify scenarios that may potentially prevent the FMI from providing its critical operations and services? What scenarios have been identified as a result of these processes?

The risk analysis for NBO has identified a number of scenarios that could result in the disruption of settlement functions. These scenarios have been identified on the basis of experience and incidents internally and elsewhere, trends in the payment system, and input from external suppliers and internal specialist units.

Scenarios that could lead to the disruption of settlement functions will generally involve major errors in the operating or system solutions for NBO that make settlement functions unavailable or undermine the integrity of settlement data.

Q.3.4.2: How do these scenarios take into account both independent and related risks to which the FMI is exposed?

The scenarios in the risk analysis have been developed against a broad background based on experience of settlement functions in NBO and in consultation with specialist units elsewhere in Norges Bank and external parties, including suppliers and other central banks.

Recovery or orderly wind-down plans

Q.3.4.3: What plans does the FMI have for its recovery or orderly wind-down?

Contingency plans have been prepared for how NBO’s operations can be restored following disruptions of varying scopes. The first step is to activate the contingency arrangements around the ordinary operating and backup solutions at the external operational service provider. If the disruption is serious or protracted, or there are problems with the system solution, an enhanced contingency solution for NBO in SWIFT may be taken into use. The aim in both cases is for important settlements to be performed on the same day.

Operational monitoring and management of NBO can be resumed from an external secondary site.

Q.3.4.4: How do the FMI’s key recovery or orderly wind-down strategies enable the FMI to continue to provide critical operations and services?

Restoration of settlement functionality following disruption to ordinary operations is provided for in documented procedures for taking into use the ordinary operating and backup solutions from the external supplier or the enhanced contingency solution in SWIFT. Exercises to test the standard backup solutions are to be performed regularly with the external operational service provider, while Norges Bank holds exercises several times a year to test the use of the enhanced contingency solution both internally and in collaboration with the banks.

Q.3.4.5: How are the plans for the FMI's recovery and orderly wind-down reviewed and updated? How frequently are the plans reviewed and updated?

The plans for restoring NBO's settlement functionality following serious disruption are reviewed and updated in the event of changes to the solutions and in the light of experience from exercises and ordinary operations.

Assessment

The framework for risk management established for Norges Bank is used for NBO. This framework and its application are based on nationally and internationally recognised risk management principles. The framework provides guidance in identifying, assessing, handling and reporting risks. The risk analysis for NBO is designed, reviewed and updated in line with this framework. Changes to the risk profile are captured through experience from settlement operations and contact with internal specialists, participants in NBO, suppliers and other external parties.

The risk analysis for NBO describes the connections between identified risks, controls and measures. The connection with the risk assessments of critical suppliers is included where relevant.

The threat level for key IT-based solutions in the financial sector is gradually becoming more challenging, and there is a growing risk of disruption to the availability, integrity and confidentiality of payment orders and account information, as well as of financial losses.

The NBO Terms and Conditions contain special requirements for security mechanisms. Banks' security awareness and practices may vary. It may therefore be appropriate to consider strengthening the security requirements for participants so as to protect NBO better against the growing risks in this area. This may also help some participants to focus more attention on the protection of their own operations.

Norges Bank updates contingency plans, including plans for restoring settlement functionality in NBO following disruptions and returning to ordinary operations, whenever a need for updates and adjustments is identified. This will be based partly on experience from exercises, any actual disruptions and where systems or processes are modified.

The risk situation for NBO is reviewed and reported on regularly. Risks are assessed with support from relevant specialist units internally and input from external suppliers. The risk analysis is documented in a separate specialised system for risk management. This means that the connections between identified risks, controls, risk-mitigating measures and incidents are clarified and documented. Work on developing the use of risk management tools is ongoing, partly to make these connections clearer.

Against this background, Principle 3 is considered to be observed.

Principle 4: Credit risk

An FMI should effectively measure, monitor, and manage its credit exposures to participants and those arising from its payment, clearing, and settlement processes. An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two largest participants and their affiliates that would potentially cause the largest aggregate credit exposures to the CCP in extreme but plausible market conditions. All other CCPs should maintain, at a minimum, total financial resources sufficient to cover the default of the one participant and its affiliates that would potentially cause the largest aggregate credit exposures to the CCP in extreme but plausible market conditions.

Because of the extensive interactions between the financial risk management and financial resources principles, this principle should be reviewed in the context of Principle 5 on collateral, Principle 6 on margin and Principle 7 on liquidity risk, as appropriate. This principle should also be reviewed in the context of Principle 13 on participant default rules and procedures, Principle 23 on disclosure of rules, key procedures and market data, and other principles, as appropriate.

Key consideration 1

An FMI should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its payment, clearing, and settlement processes. Credit exposure may arise from current exposures, potential future exposures, or both.

Q.4.1.1: What is the FMI's framework for managing credit exposures, including current and potential future exposures, to its participants and arising from its payment, clearing and settlement processes?

Norges Bank offers banks loans with fixed terms (F-loans) and intraday and overnight loans (D-loans). D-loans help make the settlement process more efficient by enabling banks to obtain sufficient funds to settle their payment positions. D-loans are normally repaid by the end of the day, in which case they are interest-free. If they are not repaid by the end of the day, they become interest-bearing overnight D-loans. F-loans are auctioned by Norges Bank to supply liquidity to the banking system in its exercise of monetary policy. The maturity of F-loans varies and depends on the liquidity situation in the banking system.

In order to borrow from Norges Bank, a bank must comply with the *Terms and Conditions for Account Management, Collateralisation and Participation in Norges Bank's Settlement System (NBO)* and have pledged approved collateral in favour of Norges Bank. Norges Bank requires collateral in the form of pledged securities for both D-loans and F-loans to banks. Equivalent collateral requirements apply to loans to participants other than banks. Deposits with a fixed term (F-deposits) and deposits in other Scandinavian central banks may also be accepted as collateral for loans. The same portfolio of assets is used as collateral for all types of loan. Access to borrowing facilities is provided for in the Norges Bank Act, and more detailed rules are set out in the Lending Regulation and separate guidelines on collateral for loans from Norges Bank.

Q.4.1.2: How frequently is the framework reviewed to reflect the changing environment, market practices and new products?

Credit exposures in NBO arise because banks and others that have an account at Norges Bank have access to credit against collateral in the form of pledged securities and central bank deposits approved by Norges Bank.

Norges Bank constantly monitors developments in financial markets. The framework for managing credit exposures is assessed regularly and as required in the light of developments in the markets or Norges Bank's operations or experience from risk management. The guidelines, including haircuts, were last reviewed in 2015, and revised guidelines entered into force in 2016. The Lending Regulation was revised and adjusted when the current settlement system was taken into use in 2009. A number of minor alterations were made in 2011 and 2016.

Key consideration 2

An FMI should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.

Q.4.2.1: How does the FMI identify sources of credit risk? What are the sources of credit risk that the FMI has identified?

The most important source of credit risk for Norges Bank is the loans made to banks and other participants in NBO. Norges Bank may incur losses if a participant defaults on a loan and the collateral pledged for the loan does not fully cover the value of the loan. This may happen if the borrower is placed under public administration or into bankruptcy at the same time that a sharp fall in the market value of the pledged securities pulls the value of the collateral below the outstanding amount of the loan, and the haircuts used as a safety margin when calculating available credit have not been sufficient.

Q.4.2.2: How does the FMI measure and monitor credit exposures? How frequently does and how frequently can the FMI recalculate these exposures? How timely is the information?

In the settlement system, each bank's available credit is updated regularly with information on collateralisation from central securities depositories and suppliers of market data for each security. Through an automated procedure, available credit is updated for all participants in NBO each morning and when new information comes in for calculating collateral values. Loans are not granted unless a borrower has available credit supported by approved collateral.

As part of the daily monitoring of settlement functions, there are checks that there are no outstanding unsecured loans. Lending levels are reported on regularly, broken down by country of issue, currency, central securities depository, etc. This information is presented in the monthly and annual reports on NBO and quarterly reports on financial risk, among others.

Q.4.2.3: What tools does the FMI use to control identified sources of credit risk (for example, offering an RTGS or DvP settlement mechanism, limiting net debits or intraday credit, establishing concentration limits, or marking positions to market on a daily or intraday basis)? How does the FMI measure the effectiveness of these tools?

In NBO, payments between participants are settled in real time. There is therefore no time difference between acceptance/verification and settlement of a payment order. This applies both to individual payments and to clearings from NICS, VPS and CCPs.

Each participant's available credit in NBO is updated daily with new information on market prices, interest rates, exchange rates and credit ratings for the collateral. These updates are automated and based on market data from regular suppliers.

The credit risk in the payment system outside NBO is limited by individual payments included in clearings from NICS not being credited to the recipient until the clearing has been settled in NBO, and by ownership of securities in VPS not being transferred until the cash leg of securities settlement has been settled in NBO.

Key consideration 3

A payment system or SSS should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (see Principle 5 on collateral). In the case of a DNS payment system or DNS SSS in which there is no settlement guarantee but where its participants face credit exposures arising from its payment, clearing, and settlement processes, such an FMI should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.

Coverage of exposures to each participant

Q.4.3.1: How does the payment system or SSS cover its current and, where they exist, potential future exposures to each participant? What is the composition of the FMI's financial resources used to cover these exposures? How accessible are these financial resources?

Settlement of the cash leg of securities settlement in NBO is based on all participants in the settlement having sufficient funds for their payment obligations in the form of deposits or available credit at Norges Bank. To provide security for the settlement of as many trades as possible, each participant in settlement sets aside an amount in its account in NBO to cover its payment obligations. This amount is used by VPS when calculating which trades can be settled. This procedure helps reduce the risk in each securities settlement.

Q.4.3.2: To what extent do these financial resources cover the payment system's or SSS's current and potential future exposures fully with a high degree of confidence? How frequently does the payment system or SSS evaluate the sufficiency of these financial resources?

See Q.4.3.1.

For DNS payment systems and DNS SSSs in which there is no settlement guarantee

In NBO, payment orders are settled immediately after they are received. This applies both to individual payments and to payment obligations in clearings submitted by the clearing houses. NBO does not aggregate payments during the day for subsequent settlement. Potential credit exposures in net settlements are nevertheless discussed under Q.4.3.3 and Q.4.3.4 below.

Q.4.3.3: If the payment system or SSS is a DNS system in which there is no settlement guarantee, do its participants face credit exposures arising from the payment, clearing and settlement processes? If there are credit exposures in the system, how does the system monitor and measure these exposures?

Net settlements in NBO are carried out if, and only if, all participants have sufficient funds to cover their payment obligations in the form of deposits or loans from Norges Bank. Any loans from Norges Bank must be secured against collateral that is approved in advance. Norges Bank monitors participants' credit positions, especially if loans are not repaid on the same day and so become interest-bearing overnight loans. Norges Bank does not monitor credit exposures that might arise between participants in the payment, clearing and settlement process.

Q.4.3.4: If the payment system or SSS is a DNS system in which there is no settlement guarantee and has credit exposures among its participants, to what extent do the payment system's or SSS's financial resources cover, at a minimum, the default of the two participants and their affiliates that would create the largest aggregate credit exposure in the system?

Participants in the settlement of payments in NBO are not exposed to any credit risk vis-à-vis Norges Bank as settlement bank. Net settlements are performed only if all participants have sufficient funds to cover their payment obligations. In the event of the insolvency of one or more participants, the account(s) will be blocked from making or receiving any new payments. One exception to this is securities settlement, where the account balance can be used to settle securities trades on the same day that the participant is placed under public administration or into bankruptcy.

Key considerations 4-6

Key considerations 4-6 concern CCPs in trades in financial instruments and have not been assessed for NBO.

Key consideration 7

An FMI should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the FMI. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds an FMI may borrow from liquidity providers. These rules and procedures should also indicate the FMI's process to replenish any financial resources that the FMI may employ during a stress event, so that the FMI can continue to operate in a safe and sound manner.

Allocation of credit losses

Q.4.7.1: How do the FMI's rules and procedures explicitly address any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the FMI? How do the FMI's rules and procedures address the allocation of uncovered credit losses and in what order, including the repayment of any funds an FMI may borrow from liquidity providers?

Norges Bank's most important insurance against losses on loans to participants in NBO is the right to realise the collateral that each participant has pledged for loans. This right is set out in the NBO Terms and Conditions. The authority to realise the collateral is assigned to the system owner for NBO. Otherwise, Norges Bank as central bank has an unlimited supply of liquidity and does not need to borrow from others.

Replenishment of financial resources

Q.4.7.2: What are the FMI's rules and procedures on the replenishment of the financial resources that are exhausted during a stress event?

As central bank, Norges Bank is the issuer of NOK and, as such, has unlimited financial resources. Norges Bank does not therefore need to take action to replenish financial resources in the form of NOK exhausted during a stress event.

Assessment

Credit risk arising in NBO is well managed through the rules on collateral for loans and procedures for monitoring that there is always adequate collateral for outstanding loans. Each participant's available credit is updated daily on the basis of market data on the securities pledged as collateral, including prices, interest rates, exchange rates and credit ratings. These updates are based on automated procedures, and fixed risk-based percentage haircuts are applied to market values when calculating the collateral value of each security.

The NBO Terms and Conditions also state that Norges Bank has a right to realise the collateral immediately if a participant defaults on a loan. Procedures for how the collateral is to be realised have been put in place.

Principle 4 is considered to be observed.

Principle 5: Collateral

An FMI that requires collateral to manage its or its participants' credit exposure should accept collateral with low credit, liquidity, and market risks. An FMI should also set and enforce appropriately conservative haircuts and concentration limits.

Because of the extensive interactions between the financial risk management and financial resources principles, this principle should be reviewed in the context of Principle 4 on credit risk, Principle 6 on margin and Principle 7 on liquidity risk, as appropriate. This principle should also be reviewed in the context of Principle 14 on segregation and portability, Principle 16 on custody and investment risk, and other principles, as appropriate.

Key consideration 1

An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks.

Q.5.1.1: How does the FMI determine whether a specific asset can be accepted as collateral, including collateral that will be accepted on an exceptional basis? How does the FMI determine what qualifies as an exceptional basis? How frequently does the FMI adjust these determinations? How frequently does the FMI accept collateral on an exceptional basis, and does it place limits on its acceptance of such collateral?

The collateral rules include qualitative criteria for the assets that may be approved as collateral for loans from Norges Bank. For securities, there are requirements for the type of security, issuer, currency and credit rating. The risk is limited by accepting only securities and fund units of good quality as collateral, and by setting the collateral value of securities below their market value (haircuts). Haircuts have been set for each category of security. The collateral rules are intended both to minimise the risk to Norges Bank when lending to banks, and to ensure that banks are able to raise loans as required.

The collateral requirements are reviewed in the light of developments in financial markets and the need for efficient settlement of payments and conduct of monetary policy. These reviews are not conducted at set intervals. In situations where there is pressure on financial stability, there may be a need to expand the universe of securities that may be posted as collateral for loans in order to permit a more extensive and flexible supply of liquidity to banks. This last occurred in 2008, when the rules were relaxed so that banks could draw loans from Norges Bank with longer maturities and to a greater extent than normal. This was offered to provide the banks with a reliable supply of liquidity during a period of stress in global financial markets. This temporary relaxation of the rules was phased out in two stages in 2010 and 2012.

Any decisions to waive the ordinary collateral requirements must be taken by Norges Bank's senior management. Staff cannot accept securities as collateral if they do not comply with the current rules.

Q.5.1.2: How does the FMI monitor the collateral that is posted so that the collateral meets the applicable acceptance criteria?

All securities and fund units that Norges Bank has approved as collateral are included on a list that is available on the Bank's website. The market value and collateral value of all securities pledged as collateral in favour of Norges Bank are updated continuously using automated procedures between central securities depositories, suppliers of financial data and Norges Bank. Checks are made that each asset pledged meets the qualitative criteria set out in the rules. The collateral posted is then used to calculate, again using automated procedures, the amount of credit to which each security entitles each bank. Participants wishing to pledge securities and fund units that are not already on the approved list must first have these securities approved by Norges Bank.

Various specialist units at Norges Bank monitor developments in financial markets and warn of any developments that may have implications for collateralisation.

Q.5.1.3: How does the FMI identify and mitigate possible specific wrong-way risk – for example, by limiting the collateral it accepts (including collateral concentration limits)?

The rules contain various limits in order to reduce concentration risk. For example, Norges Bank does not accept collateral in the form of securities issued by banks and other financial institutions, or bonds, and short-term paper issued by companies in which banks and other financial institutions collectively have a direct or indirect holding of more than a third.

A participant may, however, pledge covered bonds and other asset-backed securities even if the securities have been issued by a company in the same group as the participant. Covered bonds issued by companies in the same group are subject to an additional haircut.

Key consideration 2

An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.

Valuation practices

Q.5.2.1: How frequently does the FMI mark its collateral to market, and does it do so at least daily?

The market value of the collateral posted by each bank is updated following changes to each participant's collateral and at least twice daily: before the settlement system opens in the morning, and around 4 p.m. before the settlement system closes for the day. In the case of securities deposited in VPS, prices are obtained from Oslo Børs to supplement internal estimates by Norges Bank, and the lower of the two is used. To calculate the collateral value, the market value for each type of security is subject to a haircut at a fixed rate based on the security's risk profile.

Q.5.2.2: To what extent is the FMI authorised to exercise discretion in valuing assets when market prices do not represent their true value?

The guiding principle is that securities must always be valued based on the automated procedures mentioned above, including the use of estimates. The rules do, however, allow Norges Bank to depart from the qualitative requirements for collateral. This might be done to limit Norges Bank's risk in a situation with falling market values, or to supply liquidity to participants in times of market stress.

Haircutting practices

Q.5.2.3: How does the FMI determine haircuts?

The rules divide securities into categories. The haircut for each security is determined on the basis of its category, maturity and time to re-fixing, using recorded fluctuations in market values and recognised methods. Some discretion is also used to set the haircuts for categories of securities where only limited data on market values over time are available. Additional haircuts are applied to securities denominated in currencies other than NOK and to covered bonds issued by a company in the same group as the participant or affiliated to the participant.

Q.5.2.4: How does the FMI test the sufficiency of haircuts and validate its haircut procedures, including with respect to the potential decline in the assets' value in stressed market conditions involving the liquidation of collateral? How frequently does the FMI complete this test?

The sufficiency of haircuts is considered when the rules in general are reviewed. Haircuts may also be adjusted in response to particular events, stress or uncertainty in financial markets.

Key consideration 3

In order to reduce the need for procyclical adjustments, an FMI should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent.

Q.5.3.1: How does the FMI identify and evaluate the potential procyclicality of its haircut calibrations? How does the FMI consider reducing the need for procyclical adjustments – for example, by incorporating periods of stressed market conditions during the calibration of haircuts?

For the rules on collateral in periods of stressed market conditions, Norges Bank will need to address conflicting factors. As central bank, Norges Bank may need to supply the market with more liquidity. This might indicate that the collateral universe should be expanded, and that the qualitative requirements for collateral, including haircuts, should be relaxed. On the other hand, the need to limit the risk to Norges Bank might indicate that the collateral requirements, including haircuts, should be tightened. This could have a procyclical effect.

Key consideration 4

An FMI should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.

Q.5.4.1: What are the FMI's policies for identifying and avoiding concentrated holdings of certain assets in order to limit potential adverse price effects at liquidation? What factors (for example, adverse price effects or market conditions) are considered when determining these policies?

The collateral rules contain a number of provisions to prevent concentration risk and ensure that the securities are liquid. For example, securities issued by a bank or other financial institution, or by a company in which banks or other financial institutions in the same group directly or indirectly own more than a third, may not be pledged as collateral.

There is also a requirement that a borrower may not post more than 20 percent of the outstanding volume of an issue (ISIN) as collateral for loans from Norges Bank. Norwegian government securities are exempted from this restriction. In the case of fund units, a borrower may not normally post more than 20 percent of the fund's assets under management as collateral.

Q.5.4.2: How does the FMI review and evaluate concentration policies and practices to determine their adequacy? How frequently does the FMI review and evaluate these policies and practices?

The rules on avoiding concentration risk on the collateral provided are considered when the rules in general are reviewed and revised. Otherwise, the ongoing monitoring of financial markets and collateral provides information about developments that may provide grounds to review the rules. Such reviews are not conducted at set intervals.

Key consideration 5

An FMI that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.

Q.5.5.1: What are the legal, operational, market and other risks that the FMI faces by accepting cross-border collateral? How does the FMI mitigate these risks?

Cross-border collateral is taken to mean in this context securities that are issued in a country other than Norway or are deposited in favour of Norges Bank in a foreign central securities depository.

The legal risk arises because the actual pledging of assets in favour of Norges Bank, and any realisation of the collateral, come under a jurisdiction other than Norway. Joint EEA rules help to reduce the legal risk. In principle, therefore, Norges Bank accepts only securities from foreign issuers within the EEA as collateral for loans. Issuers outside the EEA may be approved if Norges Bank receives legal confirmation that there are no problems associated with realising the collateral.

The agreements with foreign central securities depositories contain provisions designed to further reduce the legal risk to Norges Bank. Three-way agreements on collateral have been entered into between each depository, each participant pledging collateral and Norges Bank.

Periodically, the Bank obtains a statement from an independent law firm on changes in Belgian and Luxembourgish law that could affect these agreements and Norges Bank's rights, including the right to realise collateral.

The operational risk relates particularly to the procedures for banks' posting of collateral in the central securities depositories, and to the automated transfer of data on each bank's collateral from each depository to Norges Bank. This risk is mitigated through automated checks in the system solution at Norges Bank.

Market risk arises where loans from Norges Bank are denominated in NOK but the collateral is in another currency. This risk is mitigated by applying an additional haircut, currently 6 percentage points, to such securities.

Q.5.5.2: How does the FMI ensure that cross-border collateral can be used in a timely manner?

Securities pledged as collateral in a foreign central securities depository are made available for loans from Norges Bank through automated data transfer to Norges Bank's system solution and automated calculation of available credit in NBO. Changes to the collateral in foreign central securities depositories are transferred daily to the system solution at Norges Bank, and available credit is updated continuously on the basis of market values, interest rates, credit ratings, etc. for the collateral, and changes in the assets pledged.

Key consideration 6

An FMI should use a collateral management system that is well-designed and operationally flexible.

Collateral management system design

Q.5.6.1: What are the primary features of the FMI's collateral management system?

The main aim of Norges Bank's system for managing banks' collateral for loans is to minimise the risk of the Bank suffering losses on loans to banks, while still ensuring that banks are able to borrow sufficiently from Norges Bank to enable the conduct of monetary policy and the settlement of payments. The system is set up for real-time collateralisation with immediate updating of the available credit in each bank's account in NBO. The banks themselves pledge the bulk of the securities they use as collateral in favour of Norges Bank in their own account in the central securities depositories. Each depository sends an electronic file with updated holding values for automatic registration in the system solution daily and following changes to the collateral. The system then calculates the value of the collateral and transfers this to NBO. The settlement system automatically draws on the available credit when a payment order exceeds the balance on the account.

Participants do not have the right themselves to reduce holdings pledged in favour of Norges Bank directly in the central securities depositories. They must therefore ask Norges Bank to release these securities. Norges Bank checks, mainly through an automated procedure in the system solution, whether the collateral has been utilised before it is released. This prevents banks from themselves removing collateral that is in use.

A bank's available credit is reduced at the start of the day, one NBO business day prior to the maturity date of a security posted as collateral. Norges Bank checks one NBO business day prior to maturity that the maturing collateral is not in use, and after this, the amount is transferred directly to the account holder early in the morning on the maturity date. When pledged securities at a foreign depository mature, a bank must submit a request to Norges Bank to have the amount transferred to the bank's ordinary account.

Q.5.6.2: How and to what extent does the FMI track the reuse of collateral and its rights to the collateral provided?

When securities have been pledged to Norges Bank in a separate account in each depository, the Bank has full rights of disposal over the collateral but is not the owner of the securities. The reuse of securities as collateral vis-à-vis other parties is not therefore possible, as Norges Bank's rights to the securities must be indisputable. This is regulated by the NBO Terms and Conditions and in the agreements with the central securities depositories.

Operational flexibility

Q.5.6.3: How and to what extent does the FMI's collateral management system accommodate changes in the ongoing monitoring and management of collateral?

The collateral management framework consists mainly of rules, agreements and system solutions. The rules and agreements are reviewed and updated in the light of developments in financial markets and changes to Norges Bank's rules and guidelines.

In principle, the system solutions are standard solutions supplied by external service providers in an international market. These standard solutions have, however, been customised in some respects at the request of Norges Bank. This has been done so that they take account of events, developments in financial markets and operational experience in the use of the solutions. Some adjustments may be made by Norges Bank itself, for example by changing settings and parameters in the systems. Sometimes a change request must be submitted to the suppliers. Such changes will be thoroughly tested before a new version of the system solution is taken into operation.

Q.5.6.4: To what extent is the collateral management system staffed to ensure smooth operations even during times of market stress?

Internally within Norges Bank, the collateral system is managed along with the settlement system. Day-to-day procedures are handled by all operators, while some have more in-depth knowledge of the system and can deal with matters that require such knowledge. The unit is organised such that it can also handle situations with market turmoil and stress. Such situations may also require access to internal ICT expertise from the supplier of operating services and within Norges Bank, as well as system expertise from the external software suppliers.

Assessment

The rules on collateral for loans aim to give Norges Bank limited credit risk vis-à-vis participants in NBO while enabling participants to borrow sufficiently with regard to liquidity management and the settlement of payments. Market developments are monitored continuously, and the collateral criteria such as category of security, issuer (including country and currency) and haircuts are reviewed as circumstances dictate and when there is a need to amend the rules in response to particular events, stress or uncertainty in financial markets. These developments are monitored by various specialist units at Norges Bank, while the ongoing work on checking that collateral satisfies the criteria and registering the collateral posted is carried out as part of settlement activities in NBO. It is important to have good and ongoing contact with these specialist units at the Bank in order to exchange information about the market situation and operational experience from collateralisation.

Norges Bank has a comprehensive regulatory framework and the collateral for loans to NBO participants is monitored continuously. Principle 5 is considered to be observed.

Principle 6: Margin

A CCP should cover its credit exposures to its participants for all products through an effective margin system that is risk-based and regularly reviewed.

Assessment

Principle 6 concerns CCPs in trades of financial instruments and is not considered relevant to NBO.

Principle 7: Liquidity risk

An FMI should effectively measure, monitor, and manage its liquidity risk. An FMI should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions.

Because of the extensive interactions between the financial risk management and financial resources principles, this principle should be reviewed in the context of Principle 4 on credit risk, Principle 5 on collateral and Principle 6 on margin, as appropriate. This principle should also be reviewed in the context of Principle 8 on settlement finality, Principle 13 on participant default rules and procedures, Principle 23 on disclosure of rules, key procedures and market data, and other principles, as appropriate.

Key consideration 1

An FMI should have a robust framework to manage its liquidity risks from its participants, settlement banks, nostro agents, custodian banks, liquidity providers, and other entities.

Q.7.1.1: What is the FMI's framework for managing its liquidity risks, in all relevant currencies, from its participants, settlement banks, nostro agents, custodian banks, liquidity providers and other entities?

As central bank, Norges Bank has the exclusive right to issue NOK. It therefore has an unlimited supply of NOK and does not have any liquidity risk vis-à-vis the participants in NBO. Nor can Norges Bank therefore incur liquidity risk from other parties.

In the event of operational disruption, there may be situations where Norges Bank is unable to make liquidity available for the settlement of payments in NBO. In this case, there will be an operational risk with consequences for participants' access to liquidity.

The framework for risk management at Norges Bank defines liquidity risk at Norges Bank as follows: *Liquidity risk is the risk of the Bank not being in a position to fulfil its obligations without incurring unplanned costs*, cf. discussion under Principle 3. This definition is not relevant when assessing liquidity risk in NBO.

Q.7.1.2: What are the nature and size of the FMI's liquidity needs, and the associated sources of liquidity risks, that arise in the FMI in all relevant currencies?

Given its role as central bank and exclusive right to issue NOK, Norges Bank itself can cover its liquidity needs in relation to NBO. Payments in foreign currency are not settled in NBO.

Q.7.1.3: How does the FMI take into account the potential aggregate liquidity risk presented by an individual entity and its affiliates that may play multiples roles with respect to the FMI?

Norges Bank does not have any liquidity risk vis-à-vis participants in its settlement system, and participants do not have any liquidity risk vis-à-vis Norges Bank. Participants in NBO do, however, have liquidity risk vis-à-vis other participants in NBO. This applies both directly between two participants and indirectly between banks that act as settlement banks for others. This does not, however, mean that Norges Bank as settlement bank incurs liquidity risk in NBO.

Most banks with an account at Norges Bank still use another bank as settlement bank in NBO. If such a settlement bank cannot settle in NBO on behalf of its participant banks, these can instead become direct participants in NBO. This switch can be made on the basis of authorities that the banks have given to NICS. If a bank has a contingency account in NBO, the bank itself must request that it is activated. Re-registration in NBO and in NICS will entail a delay in relation to the ordinary operating schedule. This contingency procedure has been introduced to reduce the consequences of problems at a private settlement bank. This arrangement with indirect participation and possible switching to direct participation does not present any liquidity risk for Norges Bank.

Key consideration 2

An FMI should have effective operational and analytical tools to identify, measure, and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.

Q.7.2.1: What operational and analytical tools does the FMI have to identify, measure and monitor settlement and funding flows?

The settlement of payments in NBO is monitored continuously during the day. Any problems or disruptions are registered and reported, including any shortage of funds at participants to cover their payment obligations in net settlements. The database and each bank's account in NBO are updated continuously and enable the possibility of a large number of reports both for historical purposes and to monitor the current situation.

Participants in NBO can monitor their own accounts via the Internet-based NBO Online and so their own liquidity position in NBO. All postings and changes to loan facilities are updated continuously during the day.

Statistics on all payment orders and other transactions in NBO are stored in a separate database for statistics and reporting purposes. Within Norges Bank, there are various users of the database for different purposes. These include:

- reconciliation and reporting (monthly report, monthly reconciliation, reporting to the tax authorities),
- analyses,
- specific enquiries from banks,
- various analyses where the data provide the information requested,
- information on reserve deposits in connection with the liquidity management system.

Q.7.2.2: How does the FMI use those tools to identify, measure and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity?

Settlement and funding streams in NBO are monitored, analysed and reported as set out under Q.7.2.1. As central bank, Norges Bank has a particular responsibility to informing external stakeholders and the general public about its operations. Information from NBO is used in a variety of analyses and publications from Norges Bank.

Key consideration 3

A payment system or SSS, including one employing a DNS mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement, and where appropriate intraday or multiday settlement, of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.

Q.7.3.1: How does the payment system or SSS determine the amount of liquid resources in all relevant currencies to effect same day settlement and, where appropriate, intraday or multiday settlement of payment obligations? What potential stress scenarios (including, but not limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions) does the payment system or SSS use to make this determination?

Q.7.3.2: What is the estimated size of the liquidity shortfall in each currency that the payment system or SSS would need to cover?

Norges Bank as central bank has the exclusive right to issue NOK and therefore has an unlimited supply of liquidity. For a payment order to be settled in NBO, the payer must have sufficient funds. This means that Q.7.3.1 and Q.7.3.2 above on access to liquidity are not relevant to Norges Bank. A shortage of liquidity among participants in NBO could, however, have implications for the settlement of payments. This is discussed under Q.7.1.3.

Key considerations 4-9

Key considerations 4-9 apply to liquidity needs in the settlement operations of CCPs and securities settlement systems, and for payment systems that are not relevant to settlement at central banks. These key considerations are not therefore considered relevant for NBO.

Key consideration 10

An FMI should establish explicit rules and procedures that enable the FMI to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the FMI's process to replenish *any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.*

Same day settlement

Q.7.10.1: How do the FMI's rules and procedures enable it to settle payment obligations on time following any individual or combined default among its participants?

If a participant in NBO is placed under public administration or into bankruptcy, its account will immediately be blocked. Neither payments to nor from the account will be settled unless there is an order from the administrators approved by Finanstilsynet. Norges Bank's handling of such a situation is covered partly by the NBO Terms and Conditions and a specific circular.

Clearings from NICS with a participant that has been placed under public administration or into bankruptcy will be rejected in NBO. NICS will then calculate the clearings again without the participant in question and send these to NBO for settlement. These net clearings will therefore be settled in NBO later than normal. In such a situation, all net settlements in the operating schedule will still be performed during the course of the day, but without the participant that has been placed under public administration or into bankruptcy.

A separate regulation has been issued that makes it possible to agree in advance that securities settlement may be performed using financial instruments that are available in the settlement account in a central securities depository and deposits in a settlement account for securities settlement at a settlement bank. Such funds can then be used to perform securities settlements on the same working day that insolvency procedures are initiated. The central securities depository and Norges Bank will be amending their terms to provide for such a solution.

Q.7.10.2: How do the FMI's rules and procedures address unforeseen and potentially uncovered liquidity shortfalls and avoid unwinding, revoking or delaying the same day settlement of payment obligations?

The main rule for the settlement of payments in NBO is that sufficient funds are required in the form of deposits or available credit for a payment obligation to be settled. In the event of insufficient funds for gross settlements, payment orders will be queued and, if still present at closing time for the system, revoked.

A clearing from NICS will be queued in the event of insufficient funds at one or more participants. There are set deadlines for covering each clearing. If these deadlines are not met, the clearing will be rejected by NBO. NICS will then calculate a new clearing without the participant that has insufficient funds, and send this to NBO for settlement. The new clearing will be settled in NBO slightly later than normal. Payments taken out of a clearing will be included in the next clearing, even if the next clearing is not conducted before the following bank day.

The clearing process in VPS ensures that all participants will have sufficient funds to support the cash position in the clearing that are submitted to NBO. The participating banks allocate the required liquidity to a special sub-account in the RTGS system before the clearing process starts, the deposits are locked and information on all positions on those sub-accounts is submitted to VPS. During the clearing, VPS ensures that no bank will have a cash position exceeding the positions on the relevant subaccount.

Replenishment of liquidity resources

Q.7.10.3: How do the FMI's rules and procedures allow for the replenishment of any liquidity resources employed during a stress event?

Norges Bank as central bank has an unlimited supply of NOK liquidity and requires sufficient funds to fully cover the settlement of payment orders in NBO.

Assessment

Norges Bank as central bank does not itself bear any liquidity risk in relation to its settlement activities, and participants in NBO do not have any liquidity risk vis-à-vis Norges Bank as settlement bank. Participants in NBO may nevertheless incur liquidity risk as a result of errors or problems at other participants in settlement or in the event of operational disruption in NBO. Since NBO is a critical FMI, such problems will impact on Norges Bank over and above the risk that Norges Bank itself is exposed to.

Norges Bank has operational and analytical tools to identify, measure and monitor its settlement and funding streams on an ongoing and timely basis, including the use of intraday liquidity. The database and reporting tool for NBO nevertheless have some shortcomings, which the Bank is resolving. In this context, consideration is taken of the requirement for new, flexible and customised reporting options arising from demand for NBO data from other stakeholders.

Norges Bank is not itself exposed to liquidity risk in NBO, but participants in NBO have some liquidity risk among themselves that may materialise in given situations. This risk is adequately addressed by the NBO Terms and Conditions and the requirements made of participants.

Principle 7 is considered to be observed.

Principle 8: Settlement finality

An FMI should provide clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, an FMI should provide final settlement intraday or in real time.

In reviewing this principle, it should be noted that this principle is not intended to eliminate failures to deliver in securities trades. The occurrence of non-systemic amounts of such failures, although potentially undesirable, should not by itself be interpreted as a failure to satisfy this principle. This principle should be reviewed in the context of Principle 9 on money settlements, Principle 20 on FMI links, and other principles, as appropriate.

Key consideration 1

An FMI's rules and procedures should clearly define the point at which settlement is final.

Point of settlement finality

Q.8.1.1: At what point is the settlement of a payment, transfer instruction or other obligation final, meaning irrevocable and unconditional? Is the point of settlement finality defined and documented? How and to whom is this information disclosed?

The Payment Systems Act, which implements the EU's Settlement Finality Directive in Norwegian law, defines settlement as the final transfer of funds or financial instruments between participants in an interbank system or a securities settlement system. The NBO Terms and Conditions specify that a payment order is regarded as entered in NBO and settled with finality when it has been debited from or credited to one of the participant's accounts in Norges Bank. Norges Bank, the paying participant or a third party may not recall the payment order after this time.

The execution of a payment order in NBO is documented through various statuses in the settlement system: from the time the order is received and accepted as valid ("registered") until it is posted ("settled") or rejected ("discarded", "insufficient funds", "removed" etc.). This documentation also provides information on whether the order has been "diarised" or "queued" due to insufficient funds. Once an order has been posted ("settled") by transferring the amount from the payer's account to the receiver's account, settlement is final.

The NBO Terms and Conditions allow Norges Bank to make corrections upon the debit or credit of an incorrect amount or account.

Q.8.1.2: How does the FMI's legal framework and rules, including the applicable insolvency law(s), acknowledge the discharge of a payment, transfer instruction or other obligation between the FMI and its participants, or between participants?

See Q.8.1.1.

Q.8.1.3: How does the FMI demonstrate that there is a high degree of legal certainty that finality will be achieved in all relevant jurisdictions (for example, by obtaining a well-reasoned legal opinion)?

Payments are settled in NBO exclusively in NOK on the basis of Norwegian law. See also Q.8.1.1.

Finality in the case of links

Q.8.1.4: How does the FMI ensure settlement finality in the case of linkages with other FMIs?

a) *For an SSS, how is consistency of finality achieved between the SSS and, if relevant, the LVPS where the cash leg is settled?*

b) *For a CCP for cash products, what is the relation between the finality of obligations in the CCP and the finality of the settlement of the CCP claims and obligations in other systems, depending on the rules of the relevant CSD/SSS and payment system?*

Norges Bank has an agreement with each party that calculates and submits clearings for settlement in NBO. This applies to the Bits, VPS and CCPs. These agreements contain provisions that specify when the settlement of clearings is final.

a) With CCPs, payment obligations are settled with the CCP using its bankers. Net positions between different bankers are settled once daily in NBO on the basis of a separate clearing – the derivatives clearing.

Key consideration 2

An FMI should complete final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. An LVPS or SSS should consider adopting RTGS or multiple-batch processing during the settlement day.

Final settlement on the value date

Q.8.2.1: Is the FMI designed to complete final settlement on the value date (or same day settlement)? How does the FMI ensure that final settlement occurs no later than the end of the intended value date?

NBO is a real-time settlement system with immediate settlement of all payment orders provided that there are sufficient funds for each payment and the payment order meets the applicable formal and technical requirements. All valid payments are settled on the value date.

Q.8.2.2: Has the FMI ever experienced deferral of final settlement to the next business day that was not contemplated by its rules, procedures or contracts? If so, under what circumstances? If deferral was a result of the FMI's actions, what steps have been taken to prevent a similar situation in the future?

Since the current system solution for NBO was set into operation in 2009, there have been no situations where payment orders have been deferred to the next business day due to errors at Norges Bank.

Intraday or real-time final settlement

Q.8.2.3: Does the FMI provide intraday or real-time final settlement? If so, how? How are participants informed of the final settlement?

Payments in NBO are settled in real time. After the settlement of each individual payment, a message is sent automatically to the paying bank confirming that the payment order has been executed. After the settlement of clearings, confirmation is sent to the clearinghouse. Each participant can also monitor all activities in their account during the day.

Q.8.2.4: If settlement occurs through multiple-batch processing, what is the frequency of the batches and within what time frame do they operate? What happens if a participant does not have enough funds or securities at the settlement time? Are transactions entered in the next batch? If so, what is the status of those transactions and when would they become final?

At present, five clearings from NICS and two from VPS are settled in NBO each day. In addition, one clearing from SIX x-clear for trades in financial instruments and one from SIX x-clear for the use of the securities lending scheme in VPO are settled. The net settlements are distributed throughout the day on the basis of a fixed operating schedule. The operating schedule for NBO is published in circulars from Norges Bank.

If one or more participants have insufficient funds for their payment obligations in a net settlement, the clearing will not be settled in NBO. A clearing from NICS will be queued in NBO until all participants have sufficient funds to cover their payment obligations. If this does not happen by a given deadline, the clearing will be rejected and NICS will calculate a new clearing excluding the bank or banks with insufficient funds.

Q.8.2.5: If settlement does not occur intraday or in real time, how has the LVPS or SSS considered the introduction of either of these modalities?

Settlement of all payments in NBO takes place in real time throughout the day.

Key consideration 3

An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.

Q.8.3.1: How does the FMI define the point at which unsettled payments, transfer instructions or other obligations may not be revoked by a participant? How does the FMI prohibit the unilateral revocation of accepted and unsettled payments, transfer instructions or obligations after this time?

In NBO, payment orders are settled immediately they are received and verified. This is set out in the NBO Terms and Conditions, which state that payment orders are to be executed immediately in the order in which they are received, provided that the payer has sufficient funds in his account. It is not possible to reverse an order once it has been settled in NBO, see Q.8.1.1. Norges Bank may, however, rectify incorrectly registered payment orders, subject to certain rules.

Q.8.3.2: Under what circumstances can an instruction or obligation accepted by the system for settlement still be revoked (for example, queued obligations)? How can an unsettled payment or transfer instruction be revoked? Who can revoke unsettled payment or transfer instructions?

If there are insufficient funds for a payment order, it will be queued in the settlement system until there are sufficient funds in the account. Queued payment orders may be deleted by the remitter or by Norges Bank at the remitter's request. If there are messages queued in a sub-account when it is closed, the order is automatically rejected at the end of the settlement day.

Future value-dated payment orders may also be deleted by the remitter or by Norges Bank at the remitter's request up until the specified value date.

Banks can delete or reprioritise payment orders directly via NBO Online.

Q.8.3.3: Under what conditions does the FMI allow exceptions and extensions to the revocation deadline?

Norges Bank has no rules or procedures permitting participants in NBO to revoke payment orders that have been settled.

Q.8.3.4: Where does the FMI define this information? How and to whom is this information disclosed?

The rules on settlement, queuing due to insufficient funds and the handling of unsettled payment orders are set out in the NBO Terms and Conditions. The NBO Terms and Conditions are distributed directly to all participants and are publicly available on NBO's web pages. To have an account at Norges Bank, a participant must accept the NBO Terms and Conditions.

Assessment

NBO is a real-time settlement system where settlement finality is clearly defined. Principle 8 is considered to be observed.

Principle 9: Money settlements

An FMI should conduct its money settlements in central bank money where practical and available. If central bank money is not used, an FMI should minimise and strictly control the credit and liquidity risk arising from the use of commercial bank money.

This principle should be reviewed in the context of Principle 8 on settlement finality, Principle 16 on custody and investment risks, and other principles, as appropriate.

This principle is divided into five key considerations, of which only the first applies to settlement in central bank money and is therefore relevant to NBO. The other four key considerations apply only to FMIs that do not settle in central bank money.

Key consideration 1

An FMI should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.

Q.9.1.1: How does the FMI conduct money settlements? If the FMI conducts settlement in multiple currencies, how does the FMI conduct money settlement in each currency?

Q.9.1.2: If the FMI does not settle in central bank money, why is it not used?

All settlements in NBO are conducted in central bank money by debiting and crediting banks' and other participants' accounts in Norges Bank. Only settlements in NOK take place in NBO.

Assessment

Principle 9 is considered to be observed.

Principle 10: Physical deliveries

An FMI should clearly state its obligations with respect to the delivery of physical instruments or commodities and should identify, monitor, and manage the risks associated with such physical deliveries.

This principle should be reviewed in the context of Principle 15 on general business risk, Principle 23 on disclosure of rules, key procedures and market data, and other principles, as appropriate.

Key consideration 1

An FMI's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities.

Key consideration 2

An FMI should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities.

This principle applies to central securities depositories, securities settlement systems and CCPs. Norges Bank is the settlement bank for the cash leg of securities settlement and for cleared payment obligations in CCPs' settlement operations. These cash settlements are based on the principle of delivery versus payment. Cash settlement at Norges Bank takes place in real time, and confirmation of settlement is sent to VPS and the CCPs immediately. These parties then handle the transfer of the rights to the financial instruments and commodities on the condition that the cash leg of settlement has been completed.

Assessment

The key considerations concern how central securities depositories and CCPs conduct the transfer of rights to financial instruments, commodities etc. from seller to buyer. Principle 10 is not therefore considered to apply to Norges Bank's activities as a settlement bank for payment obligations.

Principle 10 is not considered to be relevant to NBO.

Principle 11: Central securities depositories

A CSD should have appropriate rules and procedures to help ensure the integrity of securities issues and minimise and manage the risks associated with the safekeeping and transfer of securities. A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry.

In reviewing this principle, where an entity legally defined as a CSD or an SSS does not hold or facilitate the holding of assets or collateral owned by its participants, the CSD or SSS in general would not be required to have arrangements to manage the safekeeping of such assets or collateral. This principle should be reviewed in the context of Principle 17 on operational risk, Principle 20 on FMI links, and other principles, as appropriate.

Assessment

This principle has six key considerations which all concern the management of securities in central securities depositories. This principle is not considered relevant to NBO as a settlement system for the cash leg of securities settlement.

Principle 12: Exchange-of-value settlement systems

If an FMI settles transactions that involve the settlement of two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.

This principle should be reviewed in the context of Principle 4 on credit risk, Principle 7 on liquidity risk, Principle 8 on settlement finality, and other principles, as appropriate.

Key consideration 1

An FMI that is an exchange-of-value settlement system should eliminate principal risk by ensuring that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation also occurs, regardless of whether the FMI settles on a gross or net basis and when finality occurs.

Norges Bank is the settlement bank for the cash leg of securities settlement at VPS, cleared payment obligations in CCPs' settlement operations, and payments in NOK for currency settlement in CLS. These settlements are based on ownership of financial instruments or currency (NOK and foreign currency) being transferred from seller to buyer when, and only when, the associated payment obligations have been settled. For settlement in NOK, this principle therefore applies to VPS, CCPs and the currency settlement system CLS.

Assessment

The settlement systems for securities at VPS, trades in financial instruments at CCPs and currency at CLS have the primary aim of ensuring that final settlement of one leg of the trade is conditioned on final settlement of the other. Norges Bank is the settlement bank for payment obligations in NOK for these systems, but does not play a role in linking the obligations that are settled.

Principle 12 is not considered to be relevant to NBO.

Principle 13: Participant-default rules and procedures

An FMI should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the FMI can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

Because of the extensive interactions between the default management principles as they apply to CCPs, this principle needs to be reviewed in the context of Principle 14 on segregation and portability. This principle should also be reviewed in the context of Principle 4 on credit risk, Principle 7 on liquidity risk, Principle 23 on disclosure of rules, key procedures and market data, and other principles, as appropriate.

Key consideration 1

An FMI should have default rules and procedures that enable the FMI to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default.

Participant default rules and procedures

Q.13.1.1: Do the FMI's rules and procedures clearly define an event of default (both a financial and an operational default of a participant) and the method for identifying a default? How are these events defined?

The legal framework for placing banks or other financial institutions under public administration or into bankruptcy is established in national legislation. Banks domiciled in Norway may be placed under public administration pursuant to Chapter 21 of the Financial Institutions Act. The same applies, subject to certain conditions, to the Norwegian branch of a bank domiciled in another country. CCP for trading in financial instruments that is domiciled in Norway may be subject to bankruptcy proceedings under the Bankruptcy Act. The bankruptcy of a bank, CCP or other financial institution that is domiciled abroad and may or may not have a branch or conduct other cross-border activities in Norway will be governed by the legislation of the home country.

The NBO Terms and Conditions contain a provision stating that a bank's account at Norges Bank will be blocked to ingoing and outgoing payments if the bank is placed under public administration or into bankruptcy. Norges Bank's handling of such a situation in NBO is set out in more detail in a separate circular (No. 5/29 June 2011).

The Ministry of Finance decides whether a bank is to be placed under public administration. In such cases, Finanstilsynet will advise the ministry. Finanstilsynet will notify Norges Bank where the rules on insolvency and public administration in Chapter 21 of the Financial Institutions Act may be applied to a financial institution.

Q.13.1.2: How do the FMI's rules and procedures address the following key aspects of a participant default:

- *a) the actions that the FMI can take when a default is declared;*
- *b) the extent to which the actions are automatic or discretionary;*
- *c) changes to normal settlement practices;*
- *d) the management of transactions at different stages of processing;*
- *e) the expected treatment of proprietary and customer transactions and accounts;*
- *f) the probable sequencing of actions;*
- *g) the roles, obligations and responsibilities of the various parties, including non-defaulting participants; and*
- *h) the existence of other mechanisms that may be activated to contain the impact of a default?*

Each item is commented on separately below:

a) When Norges Bank is notified that a participant has been placed under public administration or into bankruptcy, the participant's account will be blocked to ordinary ingoing and outgoing payments. Norges Bank may nevertheless realise collateral that the participant has pledged in favour of the Bank and, with certain restrictions, offset the Bank's claims against the balance on the participant's account.

b) The procedures followed and actions taken by Norges Bank are established and published in advance, cf. the NBO Terms and Conditions and the separate circular on handling participant default (No. 5/2011). Beyond this, there may be a need to use discretion in relation to concrete issues in each case.

c) The account of a participant placed under public administration or into bankruptcy will be blocked to ordinary ingoing and outgoing payments. If the bank is a direct participant in a net settlement from NICS, the entire clearing result will be rejected. NICS will need to recalculate the clearing result excluding payments to and from the bank in question. A new clearing result will be sent to Norges Bank and settled in NBO following the ordinary verification process. If a participant in a securities settlement from VPS is placed under public administration or into bankruptcy, the participant's account balance on the relevant sub-account in NBO may be used to execute the cash leg of securities settlements on the same working day that insolvency procedures are initiated.

d) The participant's account in NBO will generally be blocked to ordinary ingoing and outgoing payments, and any clearings will be rejected, cf. under c) above. If this is a bank, payment orders from the administrators may, with Finanstilsynet's approval, be settled in NBO if there are sufficient funds in the bank's account and a special agreement on such payments has been entered into beforehand. Such payments require manual processing.

e) Norges Bank does not involve itself directly in the participant's customer relationships.

f) The sequence of actions depends on the decision on public administration or bankruptcy proceedings and on the procedures that Norges Bank has established in the NBO Terms and Conditions and in the circular on participant default (No. 5/2011).

g) The roles, obligations and responsibilities of the parties directly and indirectly involved are set out in legislation and in procedures for NBO and for the bank sector's shared systems.

h) The participant's customers will have to use another bank, and pay-outs of customer deposits under the deposit guarantee scheme will be handled by the Norwegian Banks' Guarantee Fund. The guarantee fund has a contingency account in NBO that can be activated in such a situation.

Use of financial resources

Q.13.1.3: How do the FMI's rules and procedures allow the FMI to promptly use any financial resources that it maintains for covering losses and containing liquidity pressures arising from default, including liquidity facilities?

Norges Bank as central bank has an unlimited supply of NOK liquidity and will not have any liquidity risk vis-à-vis a bank or other participant in NBO that is placed under public administration or into bankruptcy. Any loans to the bank or participant must be secured against collateral that Norges Bank can realise under applicable legislation and the NBO Terms and Conditions. The NBO Terms and Conditions contain further rules on the realisation of collateral and the criteria for doing so. They give Norges Bank the right to cover its claims against the participant through close-out netting and to assume and realise all or parts of the collateral.

Q.13.1.4: How do the FMI's rules and procedures address the order in which the financial resources can be used?

Norges Bank has no liquidity risk vis-à-vis a bank or other participant in NBO that is placed under public administration or into bankruptcy. Any loans must be secured against collateral, and Norges Bank has the right to cover its claims through realisation of collateral and close-out netting. Beyond these rules, no special rules or procedures have been drawn up for the order in which financial resources may be used.

Q.13.1.5: How do the FMI's rules and procedures address the replenishment of resources following a default?

For the same reasons as mentioned under Q.13.1.3 and Q.13.1.4, no special rules or procedures have been drawn up for replenishing resources used in a situation where a participant in NBO is placed under public administration or subject to bankruptcy proceedings.

Key consideration 2

An FMI should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.

Q.13.2.1: Does the FMI's management have internal plans that clearly delineate the roles and responsibilities for addressing a default? What are these plans?

At an operational level, there are contingency procedures to handle a situation where a bank or other participant is placed under public administration or into bankruptcy, including blocking its account to ingoing and outgoing payments, and how clearings are to be settled if the bank or other participant is a direct participant in such net settlements.

Finanstilsynet will notify Norges Bank if a financial institution may be subject to the provisions on insolvency and public administration in the Financial Institutions Act. On the basis of this notification, Norges Bank will decide on how the matter is to be handled in NBO.

Special notification and information procedures for contingency situations of this kind have been drawn up for use in Norges Bank's internal crisis management.

Q.13.2.2: What type of communication procedures does the FMI have in order to reach in a timely manner all relevant stakeholders, including regulators, supervisors and overseers?

If a participant in NBO is placed under public administration or into bankruptcy, Norges Bank will inform other participants and players submitting payment orders for settlement in NBO about how the settlement of payments in NBO will be managed. Norges Bank will also inform the Ministry of Finance, Finanstilsynet and relevant contingency bodies about the management of settlements and other matters in this situation.

Q.13.2.3: How frequently are the internal plans to address a default reviewed? What is the governance arrangement around these plans?

The internal contingency procedures are reviewed when there are changes to the regulatory framework or the system solutions for NBO, and on the basis of experience from exercises testing these procedures. Responsibility for the procedures rests with the system owner for NBO.

Key consideration 3

An FMI should publicly disclose key aspects of its default rules and procedures.

Q.13.3.1: How are the key aspects of the FMI's participant default rules and procedures made publicly available? How do they address:

a) *the circumstances in which action may be taken;*

b) *who may take those actions;*

c) *the scope of the actions which may be taken, including the treatment of both proprietary and customer positions, funds and assets;*

d) *the mechanisms to address an FMI's obligations to non-defaulting participants; and*

e) *where direct relationships exist with participants' customers, the mechanisms to help address the defaulting participant's obligations to its customers?*

Norges Bank's rules and procedures for handling a situation where a participant in NBO is placed under public administration or into bankruptcy have been published in the NBO Terms and Conditions and, in more detail, in a separate circular on the handling of participant default in NBO (Circular No. 5/29 June 2011). These rules and procedures entail the following with regard to the items above:

a) The rules and procedures mean that action in NBO is taken on the basis of information received from Finanstilsynet that a financial institution has been placed under assessment pursuant to the Financial Institutions Act's provisions on insolvency and public administration. The same applies to information received that another participant in NBO is subject to bankruptcy proceedings under bankruptcy legislation.

b) The Ministry of Finance has the authority to decide whether a financial institution is to be placed under public administration. This applies to financial institutions domiciled in Norway and, subject to certain conditions, branches of financial institutions headquartered in another country. Bankruptcy proceedings against other participants may be initiated by the probate court following application by the debtor or its creditors. For participants in NBO headquartered in another country, decisions on bankruptcy proceedings are taken on the basis of the home country's legislation.

c) If a participant in NBO is placed under public administration or into bankruptcy, its account at Norges Bank is terminated with immediate effect. In practice, this means that the account is, as a general rule, blocked to all ingoing and outgoing payments. If the participant is a direct participant in the cash leg of securities settlement, its account balance at the relevant sub-account at Norges Bank may be used to execute securities settlements on the same working day that insolvency procedures are initiated.

d) Norges Bank's obligations to settle payment orders from other participants are not affected by one or more participants being placed under public administration or into bankruptcy. There may nevertheless be delays if the participant placed under public administration or into bankruptcy is a direct participant in a clearing from NICS that is settled in NBO. Such a clearing will be rejected by Norges Bank. NICS will need to deliver a new clearing result excluding payments to and from this participant so that the clearing can be settled in NBO. In the case of direct participants in the cash leg of securities settlement, their account balance at Norges Bank may be used to execute securities settlements on the same working day that insolvency procedures are initiated. Other participants may therefore have unsettled transactions with the defaulting participant.

e) Norges Bank has no obligations to the customers of participants in NBO.

Key consideration 4

An FMI should involve its participants and other stakeholders in the testing and review of the FMI's default procedures, including any close-out procedures. Such testing and review should be conducted at least annually or following material changes to the rules and procedures to ensure that they are practical and effective.

Q.13.4.1: How does the FMI engage with its participants and other relevant stakeholders in the testing and review of its participant default procedures? How frequently does it conduct such tests and reviews? How are these test results used? To what extent are the results shared with the board, risk committee and relevant authorities?

Each year, Norges Bank carries out a programme of contingency exercises for NBO based on a variety of contingency situations. Many of these exercises are planned and conducted together with key external parties. Sometimes the exercises will include procedures where a participant in NBO is placed under public administration or into bankruptcy. There is no set frequency for such exercises with external parties. In recent years, they have been conducted at intervals of two to three years. The results and experience from each exercise are reviewed with the participants and summarised in an exercise report. If a need for improvements is identified, a plan for this is drawn up. Information that such exercises have been conducted is presented to Norges Bank's management and governing bodies in the annual report for NBO and in quarterly management reports.

Q.13.4.2: What range of potential participant default scenarios and procedures do these tests cover? To what extent does the FMI test the implementation of the resolution regime for its participants?

The exercises that have been conducted in recent years have covered internal operating procedures, internal decision-making mechanisms and relations with external parties.

Assessment

To avoid unintended settlement of payments to and from an account in NBO for a participant that has been placed under public administration or into bankruptcy, it is important that the account is blocked at the correct time. Notice needs to be given in a predictable way so that NBO's operating procedures can be activated. It is therefore important to test these notification procedures and relations with the other players involved in the financial infrastructure on a regular basis. A notification procedure is in place from Finanstilsynet to Norges Bank for financial institutions domiciled in Norway.

Contingency procedures are reviewed regularly as they are updated and in line with changes in the formal regulatory framework and experience from incidents, contingency situations and exercises.

Principle 13 is considered to be observed.

Principle 14: Segregation and portability

A CCP should have rules and procedures that enable the segregation and portability of positions of a participant's customers and the collateral provided to the CCP with respect to those positions.

Assessment

Principle 14 concerns CCPs in trades in financial instruments and is not therefore considered relevant to NBO.

Principle 15: General business risk

An FMI should identify, monitor, and manage its general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

This principle should be reviewed in the context of Principle 3 on the framework for the comprehensive management of risks, Principle 21 on efficiency and effectiveness, and other principles, as appropriate.

Key considerations 2-5 do not apply to central banks, cf. CPMI/IOSCO's "Application of the *Principles for financial market infrastructures* to central bank FMIs".

Key consideration 1

An FMI should have robust management and control systems to identify, monitor, and manage general business risks, including losses from poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses.

Q.15.1.1: How does the FMI identify its general business risks? What general business risks has the FMI identified?

Q.15.1.2: How does the FMI monitor and manage its general business risks on an ongoing basis? Does the FMI's business risk assessment consider the potential effects on its cash flow and (in the case of a privately operated FMI) capital?

Assessment

Norges Bank's general business risk from settlement operations in NBO is considered part of other risks within its risk management framework. This includes economic risk from the introduction of new system and operating solutions, the risk of damages in the event of errors that result in losses for participants, and the risk of additional costs if external suppliers cease to supply Norges Bank.

Principle 15 is considered to be observed.

Principle 16: Custody and investment risks

An FMI should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets. An FMI's investments should be in instruments with minimal credit, market, and liquidity risks.

This principle should be reviewed in the context of Principle 4 on credit risk, Principle 5 on collateral, Principle 7 on liquidity risk, and other principles, as appropriate.

Key consideration 1

An FMI should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets.

Q.16.1.1: If the FMI uses custodians, how does the FMI select its custodians? What are the specific selection criteria the FMI uses, including supervision and regulation of these entities? How does the FMI monitor the custodians' adherence to these criteria?

Norges Bank accepts securities registered in the following central securities depositories as collateral for loans:

- Verdipapirsentralen (VPS) in Norway
- Euroclear Bank in Belgium
- Clearstream Banking in Luxembourg

There are no formal selection criteria for additional central securities depositories to be approved by Norges Bank.

Q.16.1.2: How does the FMI verify that these entities have robust accounting practices, safekeeping procedures, and internal controls that fully protect its and its participants' assets?

All of the approved central securities depositories are headquartered in an EU/EEA member state and are bound by the legislation in their home country. Norges Bank obtains independent statements on the legal regulation of Clearstream Banking and Euroclear Bank in respect of Norges Bank's rights to securities pledged as collateral for loans. Both are credit institutions covered by relevant legislation and subject to supervision in the respective countries.

Norges Bank monitors collateralisation continuously. If errors are detected in the pledging of collateral or release of pledged securities, this is followed up with the relevant central securities depository and, where appropriate, the participant in NBO that pledged the security.

Key consideration 2

An FMI should have prompt access to its assets and the assets provided by participants, when required.

Q.16.2.1: How has the FMI established that it has a sound legal basis to support enforcement of its interest or ownership rights in assets held in custody?

Rules on legal protection and the right to realise collateral depend on the legislation in the depository's home country. Norges Bank engages a law firm to review changes to laws and regulations in Belgium (Euroclear) and Luxembourg (Clearstream). The aim of the review is to meet Norges Bank's need that changes to laws and regulations do not undermine its legal right to collateral under its agreements with the central securities depositories.

Q.16.2.2: How does the FMI ensure that it has prompt access to its assets, including securities that are held with a custodian in another time zone or legal jurisdiction, in the event of participant default?

Securities that participants in NBO pledge as collateral in favour of Norges Bank are registered in separate collateral accounts for this purpose at the three central securities depositories that Norges Bank has approved and entered into an agreement with. The collateral accounts are managed by Norges Bank, and the collateral is released only if it is not in use. The collateral must be available to Norges Bank at all times under the agreements with each central securities depository and each participant as pledgor. Different time zones are not a relevant issue with the three central securities depositories currently used.

Key consideration 3

An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each.

Q.16.3.1: How does the FMI evaluate and understand its exposures to its custodian banks? In managing those exposures, how does it take into account the full scope of its relationship with each custodian bank? For instance, does the FMI use multiple custodians for the safekeeping of its assets to diversify exposure to any single custodian? How does the FMI monitor concentration of risk exposures to its custodian banks?

Norges Bank has approved the central securities depository in Norway and two recognised international central securities depositories in the EU. Each participant in NBO can decide which of these depositories to use when pledging collateral for loans from Norges Bank. The risk to Norges Bank in respect of access to collateral for realisation etc. is limited by the Bank periodically obtaining an independent statement on the legal basis for its rights to collateral in each foreign central securities depository's home country.

Key consideration 4

An FMI's investment strategy should be consistent with its overall risk-management strategy and fully disclosed to its participants, and investments should be secured by, or be claims on, *high-quality obligors. These investments should allow for quick liquidation with little, if any, adverse price effect.*

Investment strategy

Q.16.4.1: How does the FMI ensure that its investment strategy is consistent with its overall risk management strategy? How and to whom does the FMI disclose its investment strategy?

Q.16.4.2: How does the FMI ensure on an ongoing basis that its investments are secured by, or are claims on, high-quality obligors?

Risk characteristics of investments

Q.16.4.3: How does the FMI consider its overall exposure to an obligor in choosing investments? What investments are subject to limits to avoid concentration of credit risk exposures?

Q.16.4.4: Does the FMI invest participant assets in the participants' own securities or those of its affiliates?

Q.16.4.5: How does the FMI ensure that its investments allow for quick liquidation with little, if any, adverse price effect?

NBO is a settlement system where participants pledge assets – primarily securities – as collateral for loans from Norges Bank. The pledged securities are registered in separate collateral accounts and may not be withdrawn etc. without Norges Bank's consent. The participant remains the owner of the pledged securities. Norges Bank does not reinvest assets pledged as collateral for loans. Key consideration 4 is not therefore relevant to NBO.

Assessment

Besides VPS in Norway, Norges Bank has approved two foreign central securities depositories for pledging securities as collateral for loans: Euroclear Bank and Clearstream Banking. Both are large and recognised central securities depositories headquartered in Belgium and Luxembourg respectively. They are therefore subject to EU rules, which also apply in the EEA. There has been no demand from participants in NBO for other central securities depositories to be approved for pledging collateral. It has not therefore been necessary to draw up special criteria for which central securities depositories can be approved.

The agreements with Euroclear and Clearstream have been reviewed in recent years, and revised agreements have been signed. Links between Euroclear and Clearstream and other foreign central securities depositories have been mapped, and this process did not reveal anything that might affect Norges Bank's ability to realise collateral.

The Bank faces very limited risk in respect of securities pledged as collateral for loans being registered in the two foreign central securities depositories.

Besides the pledging of securities as collateral for loans, Norges Bank has entered into agreements with the other Scandinavian central banks and a number of major banks on an arrangement whereby a bank may use deposits in one of these central banks as collateral for loans from another. This arrangement, known as the Scandinavian Cash Pool, enables banks to use their combined liquidity more efficiently across the three countries. Loans under this arrangement are intraday only and must be repaid on the same day. The arrangement is based on automated procedures and presents little risk to Norges Bank.

Principle 16 is considered to be observed.

Principle 17: Operational risk

An FMI should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures, and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfilment of the FMI's obligations, including in the event of a wide-scale or major disruption.

This principle should be reviewed in the context of Principle 20 on FMI links, Principle 21 on efficiency and effectiveness, Principle 22 on communication standards and procedures, and other principles, as appropriate.

Key consideration 1

An FMI should establish a robust operational risk-management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.

Operational risk management for Norges Bank's settlement system has been designed on the basis of the risk management framework for Norges Bank Central Banking Operations. This framework consists principally of the following policy documents:

- The Executive Board's general principles for risk management at Norges Bank.
- The Executive Board's principles for risk management in Central Banking Operations.
- The Governor's guidelines for enterprise risk management in Central Banking Operations.
- The framework for enterprise risk management in Central Banking Operations.

The aim of the framework is for Norges Bank to assess continuously which material risks it faces in respect of its operations, and whether there are appropriate systems for managing these risks. The framework is to contribute to compliance with the Internal Control Regulation at Norges Bank. The practical implementation of operational risk management is based especially on this last document.

Identification of operational risk

Q.17.1.1: What are the FMI's policies and processes for identifying the plausible sources of operational risks? How do the FMI's processes identify plausible sources of operational risks, whether these risks arise from internal sources (for example, the arrangements of the system itself, including human resources), from the FMI's participants or from external sources?

Under the risk management framework, risks are identified in order to map and assess those that could prevent the achievement of objectives at different levels. Identifying risks is the first step in the risk management process.

The framework specifies the following sources for identifying risks:

Descriptions (schematics) of key processes and sub processes help to ensure completeness, i.e. that all activities are assessed. The use of process maps also contributes to clarity about which risks are being discussed. One approach to identifying risks is to discuss what needs to be achieved in each process in order for objectives to be reached. Risks will tend to relate to factors that prevent this.

Previous incidents internally and an awareness of incidents at comparable institutions are another source when identifying risks. Updated threat assessments and an awareness of developments in the regulatory backdrop are also important sources of information for risk assessments.

The overview of risk categories/types can serve as a checklist for whether all material risks have been identified.

The framework states that risk identification should be carried out in groups where participants have a good knowledge of the process under consideration. Risks that lie in the interface between two processes or are part of multiple processes should be given special attention. Under the framework, each risk has a single owner. The framework also encourages interaction between relevant specialist units internally within Norges Bank. Identification of security risks should be supported by specialist units with insight into the relevant threats.

The risk analysis for NBO

All risks considered material to NBO are assessed and included in the risk analysis.
The risk database has been set up in line with the framework and is updated in a dedicated IT system (eGRC). Risks are identified through risk analyses in change projects, incidents and non-conformances, audits, contingency plans, exercises, etc.

The risk assessment for NBO is reviewed and updated regularly and in the event of significant changes. This is done in collaboration with relevant specialist units at Norges Bank on the basis of a clear delegation of roles and responsibilities. Risk assessments are also obtained in this context from NBO's critical service providers. The risk management function ensures internal co-ordination and heads the production of a risk report to management as part of ordinary management reporting.

Q.17.1.2: What sources of operational risks has the FMI identified? What single points of failure in its operations has the FMI identified?

Sources of operational risk might be failures in systems, processes or manual procedures either internally or at external suppliers of system solutions or operating services. Failures may be IT-related or due to unintentional human error. Threat assessments also indicate a growing risk of deliberate attacks from external parties on the financial sector and critical infrastructure. This is clear, for example, from public threat assessments from the Norwegian security authorities.

Management of operational risk

Q.17.1.3: How does the FMI monitor and manage the identified operational risks?

Operational risks for NBO are monitored through continuous surveillance of the settlement process during the day internally, and through surveillance of IT operations by the external supplier. Incidents are registered and followed up with the relevant parties immediately and at regular supplier meetings. The NBO risk database is reviewed and updated quarterly and in the event of significant changes.

The procedures for monitoring, incident registration, follow-up of suppliers and follow-up of identified risks are documented. Regular reports on risk management are made to management.

Policies, processes and controls

Q.17.1.4: What policies, processes and controls does the FMI employ that are designed to ensure that operational procedures are implemented appropriately? To what extent do the FMI's systems, policies, processes and controls take into consideration relevant international, national and industry-level operational risk management standards?

Policies, processes and controls are introduced when system solutions, operating solutions and internal operating procedures for NBO are taken into use. Internal procedures are developed for day-to-day monitoring of operations and for handling contingency situations. Requirements for policies, processes and controls are included in the agreement with each external supplier. The supplier is required to have internal policies, processes and controls that are relevant to the goods and services supplied to Norges Bank.

Experience of policies, processes and controls is harvested continuously through day-to-day operations and the handling of disruptions both internally and with suppliers. Where failures or shortcomings are identified, the documentation will be assessed and adjusted. Contingency procedures will also be checked and, when necessary, adjusted on the basis of experience from exercises.

The documentation of policies, processes and controls is reviewed at regular intervals by internal and external auditors.

The development and operation of the systems for NBO and policies, processes and controls must comply with national rules and international best practices for the settlement of payments at central banks. This includes the Internal Control Regulation, Norges Bank's Security Regulations, the PFMIs and best practices for central banks. In addition, Finanstilsynet's ICT Regulations and guidance, the ITIL framework, and best practices for the operation, management and development of critical ICT systems in Norway provide a basis for operational risk management for NBO.

Q.17.1.5: What are the FMI's human resources policies to hire, train and retain qualified personnel, and how do such policies mitigate the effects of high rates of personnel turnover or key-person risk? How do the FMI's human resources and risk management policies address fraud prevention?

Recruitment at Norges Bank is based on rules and procedures administered by the central HR Unit. When recruiting for NBO, importance is attached to a broad skill set so that staff can carry out both operational and administrative duties. Stable staffing over time has led to low staff turnover. Where there is an additional workload, for example when purchasing and introducing new system or operating solutions, temporary staff are often used to assist the permanent staff for a period.

To address the security risk associated with recruitment, all employees working with NBO at Norges Bank must be security-cleared under the Security Act. Employees of external suppliers who perform tasks relating to NBO must also be security-cleared by Norges Bank, based partly on checking criminal records and credit ratings.

The Norges Bank Act requires all employees of the Bank to sign a confidentiality undertaking. This also applies to employees of suppliers carrying out work for Norges Bank. Norges Bank has ethical rules in place for its own staff that are also applicable to suppliers.

Q.17.1.6: How do the FMI's change management and project management policies and processes mitigate the risks that changes and major projects inadvertently affect the smooth functioning of the system?

Norges Bank has developed a project methodology with the production of procedures and necessary system/operational documentation. The idea is to ensure, for example, that risk assessments are carried out and that the transfer to the operating environment is handled satisfactorily. Rollouts follow the standard change procedures with a review of checklists to verify that the change is ready for deployment once the necessary decisions have been taken.

The agreement with each of NBO's critical external service/system providers contains procedures for reporting and implementing changes to system and operating solutions. The key features of these procedures are presented below.

Internally within Norges Bank, a Change Advisory Board (CAB) has been set up to consider all significant changes to system and operating solutions for the Bank, including NBO. Changes are made on the basis of formal, documented change procedures which include risk assessments and risk-mitigating measures in relation to the actual change. There is a separate schematic for ordering the rollout of new solutions.

All changes to the software for NBO are tested by Norges Bank in its own acceptance testing environment, which is almost identical to the operating environment, before being rolled out. All controls and tests are thoroughly documented, and any issues are logged in dedicated systems for further attention.

Key consideration 2

An FMI's board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the FMI's operational risk-management framework. Systems, operational policies, procedures, and controls should be reviewed, audited, and tested periodically and after significant changes.

Roles, responsibilities and framework

Q.17.2.1: How has the board of directors defined the key roles and responsibilities for operational risk management?

Norges Bank's Executive Board has issued both general principles for risk management across Norges Bank and specific principles for risk management in Central Banking Operations. The principles are based on the Internal Control Regulation issued by the Ministry of Finance and set out restrictions and requirements for risk management to be observed by the departments. When it comes to roles and responsibilities, risk management is to be organised in such a way as to ensure the necessary delegation of duties and independence between risk management in line management (first line of defence) and defined compliance and risk management functions (second line of defence). The Internal Audit supports the Executive Board in following up Norges Bank's activities by providing independent assessments and advice on the Bank's governance, risk management and internal control (third line of defence).

Based on the Executive Board's principles for risk management in Central Banking Operations, the Governor has issued guidelines for enterprise risk management in Central Banking Operations which cover roles and responsibilities.

Q.17.2.2: Does the FMI's board explicitly review and endorse the FMI's operational risk management framework? How frequently does the board review and endorse the FMI's operational risk management framework?

Norges Bank's Executive Board has issued both general principles for risk management across Norges Bank and specific principles for risk management in Central Banking Operations. Risk management for NBO is based on the framework for enterprise risk management in Central Banking Operations approved pursuant to the Governor's guidelines for enterprise risk management in Central Banking Operations.

The risk management framework is to be assessed annually and developed further in line with external requirements, internal needs and developments in the field.

Review, audit and testing

Q.17.2.3: How does the FMI review, audit and test its systems, policies, procedures and controls, including its operational risk management arrangements with participants? How frequently does the FMI conduct these reviews, audits and tests with participants?

Contact with participants in NBO – i.e. commercial and savings banks, CLS Bank and CCPs in trades in financial instruments – on systems, policies, procedures and controls, including risk management arrangements, takes place primarily through the follow-up of the NBO Terms and Conditions, any agreements entered into, training for users, and direct follow-up of each participant's account. Exercises to test contingency procedures are conducted with individual participants and with clearinghouses such as NICS and VPS. Exercises are also conducted under the auspices of the NBO Continuity Forum and the Contingency Committee for Financial Infrastructure (BFI) with the emphasis on interaction between key players in the financial infrastructure.

The SWIFT network is the main channel for sending payment orders to NBO. Quality controls and exercises to test Norges Bank's SWIFT solution are performed each year in line with the requirements for users of the SWIFT network. Any risks are identified and followed up.
Exercises are also conducted with VPS, NICS and CLS. Participant banks are also involved in the CLS exercises, which follow an annual schedule.

Before new or revised system solutions are rolled out, Norges Bank carries out tests involving external parties where relevant.

Q.17.2.4: To what extent, where relevant, is the FMI's operational risk management framework subject to external audit?

The framework for enterprise risk management at Norges Bank, including operational risk management, is subject to auditing by Norges Bank's external auditor where this is relevant for the audit of the financial statements. Norges Bank's external auditor or, at the request of Norges Bank's Supervisory Council, the Office of the Supervisory Council may also conduct supervisory reviews of enterprise risk management.

Key consideration 3

An FMI should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.

Q.17.3.1: What are the FMI's operational reliability objectives, both qualitative and quantitative? Where and how are they documented?

The main operational reliability objective is to settle payment orders continuously during NBO's opening hours using the ordinary operating and backup solutions. In the event of severe disruption, the objective is for all payment orders to be settled on the same day with the help of an enhanced contingency solution and, when necessary, manual procedures.

The agreements with suppliers of system, operating and communication solutions for NBO contain stringent requirements for IT availability and stable provision of individual services. Availability and operational stability are monitored continuously and reported monthly, and any issues are reviewed with each supplier.

Q.17.3.2: How do these objectives ensure a high degree of operational reliability?

The requirements for operational reliability are a key part of the contractual relationship and regular follow-up of each supplier. Performance is assessed against the service level requirements in each agreement and is reviewed monthly with each supplier on the basis of the supplier's operations report. Stable, efficient and secure settlement of payments is important for Norges Bank's role in society and has management's attention. The necessary resources are made available to achieve this objective.

Q.17.3.3: What are the policies in place that are designed to achieve the FMI's operational reliability objectives to ensure that the FMI takes appropriate action as needed?

Norges Bank has staffing and operational procedures for continuous monitoring of settlement in NBO during the day. Issues are followed up immediately in line with internal procedures and taken up with external participants and suppliers on the basis of agreed procedures.

Non-conformances and incidents are registered, classified and escalated in line with internal systems and procedures. Incidents and non-conformances that relate to external suppliers are reported to the supplier and followed up straight away with a more detailed review at the periodic meetings with suppliers of critical system and operating services.

Serious incidents are escalated to periodic management meetings with suppliers.

The procedures for managing non-conformances are updated on the basis of experience from incidents and non-conformances from ongoing operations, exercises and where otherwise deemed necessary.

Key consideration 4

An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.

Q.17.4.1: How does the FMI review, audit and test the scalability and adequacy of its capacity to handle, at a minimum, projected stress volumes? How frequently does the FMI conduct these reviews, audits and tests?

The systems used for the settlement of payments in NBO are capable of handling a much higher number of payment orders than is normally required (i.e. around 2,600 per day). When introducing changes and upgrades, the systems are tested with a much higher number of transactions than normal. Stress tests of this kind are also performed in the event of system adjustments to counter slow settlement functions. There are also procedures allowing banks that are account holders at Norges Bank, but are normally settling their payments through another bank in NBO to quickly use its account at Norges Bank for settlement in certain contingency situations. Another type of contingency situation that may lead to an increased volume of transactions in NBO is if clearing at NICS is not functioning, with the result that more payment orders are sent individually to NBO.

Q.17.4.2: How are situations where operational capacity is neared or exceeded addressed?

In the ongoing monitoring of the technical operation of the NBO systems, the operations service provider measures the capacity utilisation of processors, memory and discs as well as the length of various queues in the message flow. When limits are exceeded, alarms are triggered and followed up by the operations service provider.

Key consideration 5

An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.

Physical security

Q.17.5.1: What are the FMI's policies and processes, including change management and project management policies and processes, for addressing the plausible sources of physical vulnerabilities and threats on an ongoing basis?

Guidelines for addressing physical security and threats form part of Norges Bank's Security Regulations. Requirements for the physical security of operating solutions and office areas are also applied to external suppliers of system and operating solutions and are included as requirements in purchasing processes and agreements. The threat assessment for NBO is assessed regularly in collaboration with relevant specialist units. Change management and project execution follow separate guidelines and processes that include risk assessments, including risks relating to physical security.

Q.17.5.2: Do the FMI's policies, processes, controls and testing appropriately take into consideration relevant international, national and industry-level standards for physical security?

Activities relating to policies, processes, controls and testing of physical security for NBO take place in close collaboration with specialist units in this area. Relevant national and international requirements and standards serve as a basis for physical security requirements and are adjusted in line with assessed threats and risks. These include the Norwegian security risk analysis standard NS 5834, FEMA 452 and 456, and TIA 942 for data centre security.

Information security

Q.17.5.3: What are the FMI's policies and processes, including change management and project management policies and processes, for addressing the plausible sources of information security vulnerabilities and threats on an ongoing basis?

Supplementary guidelines for information security have been issued on the basis of the Executive Board's principles for security, contingency planning and crisis management at Norges Bank and powers delegated by the Governor. Information security is defined as protection of the confidentiality, integrity and availability of paper-based or electronic information. The guidelines cover roles and responsibilities, requirements for information security, and powers to issue subordinate procedures.

The information security guidelines include a requirement that the system owner obtains up-to-date information on technical vulnerabilities in the information systems that are used, and there must be an assessment of whether operating or information systems are exposed to these vulnerabilities. In addition, the system owner must ensure that security requirements are specified for new information systems and in the event of significant changes to existing information systems. These requirements are applied to, and followed up with, suppliers. Specialist security units at Norges Bank carry out specific security inspections of external suppliers before agreements are entered into and otherwise as deemed necessary.

All security incidents in the operation of NBO are documented, reported and reviewed at monthly meetings between the operations service provider and Norges Bank. In addition, separate security reviews are conducted in connection with significant changes.

Q.17.5.4: Do the FMI's policies, processes, controls and testing appropriately take into consideration relevant international, national and industry-level standards for information security?

NBO is covered by supplementary guidelines for information security at Norges Bank which require, among other things, that information and information systems are protected in accordance with relevant laws and regulations and meet requirements for confidentiality, integrity and availability. Security measures must be risk-based and rooted in recognised information security standards such as ISO 27001:2013, the ISF Standard of Good Practice for Information Security, and those from the National Institute of Standards and Technology (NIST).

Key consideration 6

An FMI should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology (IT) systems can resume operations within two hours following disruptive events. The plan should be designed to enable the FMI to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The FMI should regularly test these arrangements.

Objectives of business continuity plan

Q.17.6.1: How and to what extent does the FMI's business continuity plan reflect objectives, policies and procedures that allow for the rapid recovery and timely resumption of critical operations following a wide-scale or major disruption?

The continuity plan for NBO is designed to ensure continuous settlement of payment orders even when there is disruption in the ordinary operating solutions. In the event of severe disruption, where the ordinary operating and backup solutions cannot be used, the aim is for all payment orders to be settled on the same day using a separate enhanced contingency solution.

Under the agreement with Norges Bank, the operations service provider must have a separate continuity plan for NBO. An equivalent agreement has been reached with the supplier of the core system for NBO. The agreements also include procedures for reporting critical incidents and escalation procedures.

For the communication solution SWIFT, there are also procedures for reporting critical issues such as problems with the system solution, hardware or communication lines. Norges Bank has an extended user support agreement with SWIFT to ensure priority treatment and access to resources at SWIFT to deal with issues.

Design of business continuity plan

Q.17.6.2: How and to what extent is the FMI's business continuity plan designed to enable critical IT systems to resume operations within two hours following disruptive events, and to *enable the FMI to facilitate or complete settlement by the end of the day even in extreme circumstances?*

The continuity plan for NBO is designed to ensure continuous settlement of payments based on the ordinary operating and backup solutions. The operations service provider’s continuity plan for NBO aims to restore normal operation within the agreed resolution times based on redundancy of all hardware components, telecommunications lines, power supply and cooling. It is a requirement that two separate operating solutions can be operated independently of one another. In the event of serious disruption that cannot be managed in this way, the continuity plan means that all payments are settled on the same day with the help of an enhanced contingency solution. This contingency solution is linked to the SWIFT network and is independent of the ordinary operating and backup solutions for NBO. There are no plans for settling payments using manual procedures.

The continuity plan also contains measures to handle a situation where the SWIFT network is not available to Norges Bank. In addition to the IT-related operating and backup solutions for NBO, the continuity plan for NBO includes procedures for notifying and informing other key stakeholders and authorities about a serious contingency situation.

Q.17.6.3: How is the contingency plan designed to ensure that the status of all transactions can be identified in a timely manner, at the time of the disruption; and if there is a possibility of data loss, what are the procedures to deal with such loss (for example, reconciliation with participants or third parties)?

The contingency plans for NBO include procedures to identify the correct status of payment orders in various contingency situations, including by obtaining information from payment orders in the form of messages in the SWIFT network.

Q.17.6.4: How do the FMI’s crisis management procedures address the need for effective communications internally and with key external stakeholders and authorities?

Crisis management for NBO forms part of an overall plan for crisis management at Norges Bank. As a general rule, contingency and crisis situations are managed using the ordinary decision-making processes for line management. Crisis management is co-ordinated by an operational crisis team which reports to Norges Bank’s management.

Notification and information procedures in the event of problems and disruption in key parts of the payment system have been developed for internal crisis management. These procedures are intended to ensure a good flow of information at the correct level in different situations and timeframes. Based on a concrete assessment of each situation, Norges Bank will inform key authorities and the general public.

Where problems and disruption in NBO impact the payment system, external information will be co-ordinated through the Contingency Committee for Financial Infrastructure and the NBO Continuity Forum. The Contingency Committee is led by Finanstilsynet and has members from the banking industry, data centres and authorities with duties and responsibilities in the sector. The Continuity Forum is led by Norges Bank and has participants from key stakeholders in the financial infrastructure with links to NBO. For NBO, notification and information procedures have also been agreed with external suppliers of system and operating solutions, such as EVRY Norge AS, SIA SpA, Vermeg and SWIFT.

Secondary site

Q.17.6.5: How does the FMI's business continuity plan incorporate the use of a secondary site (including ensuring that the secondary site has sufficient resources, capabilities, functionalities and appropriate staffing arrangements)? To what extent is the secondary site located a sufficient geographic distance from the primary site such that it has a distinct risk profile?

A backup operating solution has been established for NBO that is identical to the primary operating solution. There are therefore no differences in capacity or functionality between the two solutions. Operations can be transferred from one solution to the other such that the downtime is short in the event of a failure in either solution.

It is a requirement that the operating solutions have redundant infrastructure for power, cooling and telecommunications.

Norges Bank has access to an enhanced contingency solution for NBO linked to the SWIFT network. This solution is independent of the ordinary operating and backup solutions for NBO and thus serves as a third site with a risk profile that is distinct from that of the primary and secondary sites, including a sufficient geographical distance. Use of the enhanced contingency solution is tested regularly together with participants in NBO.

Q.17.6.6: Has the FMI considered alternative arrangements (such as manual, paper-based procedures or other alternatives) to allow the processing of time-critical transactions in extreme circumstances?

When the enhanced contingency solution for NBO using the SWIFT network became available in 2015, the previous manual support system for settling payments in NBO was phased out. Manual solutions are vulnerable when in use and are difficult to maintain with regard to the skills required.

Review and testing

Q.17.6.7: How are the FMI's business continuity and contingency arrangements reviewed and tested, including with respect to scenarios related to wide-scale and major disruptions? How frequently are these arrangements reviewed and tested?

The continuity and contingency plans for NBO are reviewed in the event of changes to operating and system solutions, procedures, organisation structure or the regulatory framework for the settlement system. Each year, a plan is drawn up for regular exercises to test key contingency procedures. Some exercises are performed together with external parties that supply services or payment orders to NBO, including critical service providers such as SWIFT and international participants such as CLS Bank. Extensive and structured testing is also conducted in connection with changes to systems or operating solutions.

Situations involving wide-scale problems and disruption in NBO are tested at procedural level in the form of notification procedures and crisis management. At operational level, the procedures for taking into use the enhanced contingency solution for NBO are tested regularly together with a selection of banks.

For the SWIFT communication solution, there is normally an annual check of the setup, infrastructure, security, monitoring, procedures and contingency solutions for Norges Bank's use of the network, including the infrastructure for Norges Bank's SWIFT solution at the operations service provider.

Q.17.6.8: How does the review and testing of the FMI's business continuity and contingency arrangements involve the FMI's participants, critical service providers and linked FMIs as relevant? How frequently are the FMI's participants, critical service providers and linked FMIs involved in the review and testing?

Exercises are conducted together with banks, clearinghouses and suppliers of system and operating services for NBO under the annual plan for contingency exercises. The plan also includes exercises initiated by other external stakeholders, such as SWIFT, NICS, CLS and VPS. Some of these exercises are planned and conducted under the auspices of the Contingency Committee for Financial Infrastructure and the NBO Continuity Forum.

Key consideration 7

An FMI should identify, monitor, and manage the risks that key participants, other FMIs, and service and utility providers might pose to its operations. In addition, an FMI should identify, monitor, and manage the risks its operations might pose to other FMIs.

Risks to the FMI's own operations

Q.17.7.1: What risks has the FMI identified to its operations arising from its key participants, other FMIs, and service and utility providers? How and to what extent does the FMI monitor and manage these risks?

The greatest risks for NBO relate to threats to IT systems in the financial sector and critical infrastructure, and the use of external suppliers of critical services. Many such risks are included in the risk database for NBO and assessed regularly.

Errors at participants in NBO and other FMIs that send payment orders for settlement in NBO may result in delays to the ordinary operating schedule. The risk for NBO in such cases relates to its own management of such delays and disruption.

Numerous small banks participate in NBO but are not very active in the settlement system. There is therefore a risk that they will not have a sufficient understanding of NBO's functionality or their obligations under the NBO Terms and Conditions.
The risk in NBO is monitored constantly through surveillance of day-to-day operations with registration and follow-up of incidents and contingencies. These risk assessments are reviewed and updated quarterly and in the event of significant changes to NBO or the regulatory framework.

Q.17.7.2: If the FMI has outsourced services critical to its operations, how and to what extent does the FMI ensure that the operations of a critical service provider meet the same reliability and contingency requirements they would need to meet if they were provided internally?

The agreement with each provider of services that are critical to NBO emphasises requirements for stable and reliable performance. This includes each system's technical availability, contingency procedures and the registration, follow-up and reporting of problems. The requirements are based on national rules for critical infrastructure and international recommendations for settlement systems at central banks.

Critical service providers submit regular assessments of risks to their services to NBO. These risk assessments are incorporated into the overall risk assessment for the settlement system.

The annual report for NBO covers experience of NBO's service providers, including any weaknesses and improvements. The annual report is submitted to Norges Bank's management and governing bodies. There is also quarterly reporting to the Bank's management on risks and incidents.

Risks posed to other FMIs

Q.17.7.3: How and to what extent does the FMI identify, monitor and mitigate the risks it may pose to another FMI?

Failures and disruption in NBO can have serious consequences for other FMIs, the payment system in Norway and society as a whole. NBO is therefore considered a critical system and registered as a "sensitive object" under the Security Act. Norges Bank emphasises the importance of the stable and secure operation of NBO, and this is reflected in the risk analysis. There is also recognition here that problems in the NBO system may pose risks to other FMIs, and that these risks need to be monitored and minimised.

The risk analysis for NBO has not identified any explicit risks that NBO may pose to other FMIs.

Q.17.7.4: To what extent does the FMI co-ordinate its business continuity arrangements with those of other interdependent FMIs?

IBO has agreements and joint procedures for notification and management of contingencies with FMIs that send clearings for settlement in NBO, i.e. NICS, VPS and SIX x-clear. The settlement system at DNB Bank ASA is covered by the NBO Terms and Conditions, which include rules on the management of contingencies and disruption.

The NBO Continuity Forum has been set up by Norges Bank to improve interaction with other key stakeholders in the financial infrastructure in the management of disruption and conduct joint contingency exercises. Other FMIs are represented on this forum.

Assessment

The risk analysis for NBO is designed, reviewed and reported in accordance with the framework for enterprise risk management at Norges Bank. This framework meets the requirements for risk analyses in the Internal Control Regulation, Finanstilsynet's ICT Regulations and the recommendations in the PFMIs. The risk analysis for NBO includes all risks material to the settlement system and helps ensure that action is taken to reduce risks where appropriate. Risk assessments are obtained from external critical service providers and incorporated into the risk analysis for NBO.

Each risk is described at a general level in the risk analysis. Some risks may be triggered by a variety of causes. Software failures could be faults in the communication solution, the core system or the pledging of collateral for loans. Different types of failure can have different causes and may therefore require a different response. It is also important to differentiate between external and internal sources of risk. Norges Bank may incur risk in the event of errors or delays on the part of banks, NICS, VPS or CLS Bank. Disruption to banks' access to NBO Online might be due to Norges Bank's solutions or to the solutions of banks or third parties. Problems or disruption in NBO can also impact on external parties.

For many operational risks, the established contingency procedures are the most important controls. The importance of contingency procedures being readily available for use and stored together with day-to-day surveillance and control procedures is therefore emphasised.

The agreement with the operations service provider specifies which processes are to be followed in different contingency situations. Expertise in the NBO systems and the follow-up of such processes has been reinforced internally at Norges Bank in recent years.

Since 2009, the technical operation of NBO has generally been stable with only very rare and short-lived disruption. This does, however, present a challenge in maintaining expertise in dealing with contingency situations in the longer term, both at the operations service provider and at Norges Bank.

The physical security of the operating solution for NBO and the premises of the suppliers of system solutions is followed up through security inspections by Norges Bank.
Threats to important IT systems are a growing risk also for NBO. The importance of systematic work on employee awareness and information concerning security risks and developments in these risks is emphasised.

The continuity plan for NBO covers events where there is a risk of disruption to the operation of the settlement system. Plans and procedures for managing such events are also reconciled with participants in NBO and other external parties, including FMIs.

Access to an enhanced contingency solution in the SWIFT network means that data from payment messages can provide the basis for the settlement of payments in a situation where the ordinary operating and backup solutions are out of action. This contingency solution has a risk profile that is distinct from that of the primary and secondary solutions.

Failures and disruption at external players such as banks and clearinghouses may result in delays and disruption in NBO and in the payment system as a whole. The risk to NBO in such cases relates to efficient and appropriate contingency management for the settlement of payments.

Norges Bank conducts an annual evaluation of the accounts of all critical service providers. The aim is to be prepared for possible financial problems at a supplier in order to be able to take action in good time to ensure stable operation of NBO.

Norges Bank has a framework and practices in place for operational risk management that essentially meet the requirements of Principle 17.

Principle 17 is considered to be observed.

Principle 18: Access and participation requirements

An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.

In reviewing this principle, it should be noted that FMIs are subject to the constraints of local laws and policies of the jurisdiction in which the FMI operates, and those laws may prohibit or require the inclusion of certain categories of financial institutions. This principle should be reviewed in the context of Principle 19 on tiered participation arrangements, Principle 21 on efficiency and effectiveness, and other principles, as appropriate.

Key consideration 1

An FMI should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk-related participation requirements.

Participation criteria and requirements

Q.18.1.1: What are the FMI's criteria and requirements for participation (such as operational, financial and legal requirements)?

The Norges Bank Act permits Norges Bank to accept deposits from commercial banks and savings banks on terms laid down by the Bank. Norges Bank may also grant liquidity loans to, make deposits with, and extend credit in other forms to commercial banks and savings banks, and issue rules on the volume of such credit, the interest rates and the repayment terms. The criteria for opening an account (deposits and loans) at Norges Bank are regulated by the Regulation on the Access of Banks to Borrowing and Deposit Facilities in Norges Bank etc. (the Lending Regulation). This regulation covers banks' access to intraday and overnight loans (D-loans), loans with fixed terms (F-loans), sight deposits and deposits with fixed terms (F-deposits) at Norges Bank. Banks are defined here as commercial and savings banks headquartered in Norway and branches established in Norway by banks and credit institutions headquartered in other states.

The Lending Regulation also applies to banks and credit institutions permitted to market and provide services in Norway from an established place of business in some other EEA state which have not established a branch in Norway (cross-border activities). Banks and other credit institutions headquartered in other states and conducting cross-border activities in Norway may raise intraday D-loans and make intraday and overnight deposits in Norges Bank. Norges Bank may set special terms for overnight deposits from such banks and credit institutions, and impose penalty interest if their D-loans are not repaid by the end of the day.

Norges Bank may require branches of banks headquartered outside the EEA to present confirmation that no legal risk attaches to the collateral furnished by the bank for loans from Norges Bank.

In addition, Section 22 of the Norges Bank Act permits the Bank in special circumstances to make loans to, and accept deposits from, entities in the financial sector other than banks.

Norges Bank has decided that CLS Bank may have an account with the Bank to settle payments in NOK in the international settlement system for currency trades. In addition, Norges Bank has decided that CCPs in trades in financial instruments with settlement activities in NOK may open an account with the Bank following a concrete evaluation. CCPs with such an account may take out intraday loans against approved collateral and make intraday deposits. The positions in these accounts are to be closed daily within the opening hours for Norges Bank's settlement system. CCPs wishing to open an account must apply to Norges Bank, which will set the terms for the account.

To hold an account and participate in the settlement of payments in NBO, a participant must comply with the NBO Terms and Conditions. Participants other than commercial and savings banks must enter into a special agreement based on the NBO Terms and Conditions.

Q.18.1.2: How do these criteria and requirements allow for fair and open access to the FMI's services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk-related participation requirements?

The criteria and requirements for banks' access to account facilities at Norges Bank are based on objective and publicly disclosed rules in the form of laws, regulations, guidelines and terms. The need for financial stability, robustness and security is a key part of these rules.

NBO is at the core of the financial infrastructure in Norway, and the bulk of payments in Norway are settled directly or indirectly in NBO. Banks may participate indirectly in the settlement of payments by using another bank as settlement bank or correspondent bank. Banks that participate indirectly in settlement in NBO have the same access to account facilities at Norges Bank as other banks.

Access to trade repositories

Q.18.1.3: For a TR, how do the terms of access for use of its services help ensure that competition and innovation in post-trade processing are not impaired? How are these terms designed to support interconnectivity with other FMIs and service providers, where requested?

This question concerns trade repositories and is not therefore relevant to Norges Bank.

Key consideration 2

An FMI's participation requirements should be justified in terms of the safety and efficiency of the FMI and the markets it serves, be tailored to and commensurate with the FMI's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, an FMI should endeavour to set requirements that have the least-restrictive impact on access that circumstances permit.

Justification and rationale of participation criteria

Q.18.2.1: How are the participation requirements for the FMI justified in terms of the safety and efficiency of the FMI and its role in the markets it serves, and tailored to and commensurate with the FMI's specific risks?

It is important for a well-functioning payment system and for financial stability that central settlement of payments takes place at the central bank. The rules on account facilities at Norges Bank and participation in the settlement of payments aim to ensure that the largest banks settle their payments in NBO. The NBO Terms and Conditions emphasise the importance of stable, efficient and secure settlement of payments. NBO is available for continuous settlement of individual payments and settlement of net positions co-ordinated with the organisation of clearing in the banking industry and in the securities market. Direct participation in these settlements in NBO is subject to requirements concerning the banks' use of efficient communication solutions, own liquidity management, presence during NBO's opening hours, participation in contingency exercises and procedures for the management of banks' access to their accounts in NBO via NBO Online.

Almost all banks in Norway have an account in NBO, but only around 20 participate directly in the settlement of clearings. Other banks use their accounts for individual payments and to access lending and deposit facilities at Norges Bank.

In 2009, Norges Bank began to permit CCPs in trades in financial instruments to open accounts with the Bank and participate in the settlement of payments relating to these activities. Settlement in the central bank helps reduce the risk in these settlement activities, and that this is in line with international rules and recommendations.

Q.18.2.2: Are there participation requirements that are not risk-based but required by law or regulation? If so, what are these requirements?

To hold an account at Norges Bank and participate in the settlement of payments in NBO, participants must meet objective, formal requirements that include holding a licence to carry on business as a bank or a licence to carry on business as a CCP in trades in financial instruments. The Lending Regulation distinguishes between banks and credit institutions headquartered within and outside the EEA, and there are various special terms that apply to banks and credit institutions that conduct cross-border activities in Norway from another country.

Q.18.2.3: Are all classes of participants subject to the same access criteria? If not, what is the rationale for the different criteria (for example, size or type of activity, additional requirements for participants that act on behalf of third parties, and additional requirements for participants that are non-regulated entities)?

Banks headquartered in another EEA country are subject to the same access criteria, but there are slightly more onerous terms for cross-border activities in Norway. Special terms may be set for participation by banks headquartered outside the EEA.

Banks themselves choose how they use their accounts for different forms of participation in the settlement of payments, such as whether to participate directly or indirectly in the settlement of clearings. The prices each bank pays for settlement services are linked to the settlement functions the bank uses. For participants other than ordinary banks (i.e. CCPs, CLS Bank and other central banks), adjustments are made in the agreement with each participant based on the nature of its activities.

Least restrictive access

Q.18.2.4: How are the access restrictions and requirements reviewed to ensure that they have the least restrictive access that circumstances permit, consistent with maintaining acceptable risk controls? How frequently is this review conducted?

Access to account facilities at Norges Bank and the associated criteria and risk assessments are reviewed whenever warranted by developments in financial markets, the risk of financial instability or changes to regulatory conditions. The Norges Bank Act states that all banks in Norway may hold an account at Norges Bank, and the access criteria are designed to make this possible and practicable. The risk associated with banks holding accounts and participating in settlement at different levels is important for the design of the criteria for account facilities. For participants other than banks, holding an account at Norges Bank and participating in NBO are reviewed on the basis of their significance for the efficiency and stability of the payment system and the financial system. The accounts held by CLS Bank and CCPs are examples of this.

Disclosure of criteria

Q.18.2.5: How are participation criteria, including restrictions in participation, publicly disclosed?

The main criteria for participation in NBO are set out in the Norges Bank Act and the Lending Regulation. More detailed criteria are provided in the NBO Terms and Conditions and the Guidelines for Collateral for Loans from Norges Bank, among others. Information on these rules is available from the public database of laws and regulations Lovdata and on Norges Bank’s website. Key features of the rules are also presented in the annual report for NBO and a separate information document on NBO, both of which are available on Norges Bank’s website.

Key consideration 3

An FMI should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.

Monitoring compliance

Q.18.3.1: How does the FMI monitor its participants’ ongoing compliance with the access criteria? How are the FMI’s policies designed to ensure that the information it uses to monitor compliance with participation criteria is timely and accurate?

Norges Bank continuously monitors the settlement of payments in NBO and participants' use of the settlement system and their accounts. Non-conformances are registered and followed up both with each participant and as a source of experience for assessing the suitability of the participation criteria. This continuous monitoring and registration of non-conformances helps ensure that Norges Bank has up-to-date and accurate information about participants' compliance with the criteria.

Q.18.3.2: What are the FMI's policies for conducting enhanced surveillance of, or imposing additional controls on, a participant whose risk profile deteriorates?

Payment orders from a participant in NBO are executed only if the participant has sufficient funds to cover the payment in the form of deposits or available credit. Payment orders without sufficient funds will not be executed. Where this is part of a clearing, the clearing will be rejected after a set time and the clearinghouse will need to calculate a new clearing result that can be settled.

Norges Bank plays a variety of roles in the financial system, including surveillance and analysis of banks' financial position and liquidity in the money market. Should this surveillance pick up anything that may be significant for Norges Bank as settlement bank, this will be reported internally through established notification and information procedures. If this information may be significant for NBO, Norges Bank may contact the participant to obtain further details.

Suspension and orderly exit

Q.18.3.3: What are the FMI's procedures for managing the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements?

Rules on the termination and suspension of a participant's account are set out in the NBO Terms and Conditions. If a participant defaults or is placed under public administration or into bankruptcy, the participant's account at Norges Bank will be blocked to ingoing and outgoing payments. Norges Bank will have the right to cover its claims using the bank's deposits in Norges Bank or by realising collateral that the participant has put up for loans. Payment orders will be executed only where agreed with the administrators or the estate in bankruptcy, and with the consent of Finanstilsynet.

Q.18.3.4: How are the FMI's procedures for managing the suspension and orderly exit of a participant disclosed to the public?

The procedures are set out in the NBO Terms and Conditions, which are available on Norges Bank's website. The handling of a situation where a participant is placed under public administration or into bankruptcy is detailed further in a separate circular from Norges Bank, also available on its website.

Assessment

The terms and criteria for holding an account at Norges Bank, participating in NBO and taking out loans are set out clearly in publicly disclosed rules and guidelines. The same applies to the procedures for terminating an account. The account terms for CCPs were last revised with effect from June 2015, and the general account terms were last revised with effect from October 2015.

The rules are, however, spread across a number of source documents, making it hard to gain an overview. Norges Bank is therefore working on a combined overview of the criteria for holding an account and other important provisions. The aim of the overview is for market participants to have ready access to the necessary information on the terms and criteria for holding an account, obtaining credit and participating in settlement in NBO. The overview will be made available on NBO's web pages.

The recommendation for objective, risk-based and publicly disclosed criteria for participation is addressed by the rules at several levels containing general and specific provisions on the terms and criteria for holding an account, raising loans and participating in the settlement of payments in NBO, and procedures for terminating accounts.

Principle 18 is considered to be observed.

Principle 19: Tiered participation arrangements

An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements.

This principle should be reviewed in the context of Principle 14 on segregation and portability, Principle 18 on access and participation requirements, and other principles, as appropriate.

Key consideration 1

An FMI should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in order to identify, monitor, and manage any material risks to the FMI arising from such tiered participation arrangements.

Tiered participation arrangements

Q.19.1.1: Does the FMI have any tiered participation arrangements? If so, describe these arrangements.

Norges Bank has tiered participation arrangements for the settlement of payments in NBO. These arrangements concern the settlement of clearings from clearinghouses and individual banks' use of other banks to settle payments in NBO. These arrangements for indirect participation in NBO are described below.

<u>Settlement of clearings from NICS</u>

Payments that banks make on their own account and on behalf of customers are settled in NBO either directly through the bank's own account or indirectly via another bank through that bank's account in NBO. The banks' joint agreements and rules on clearing and settlement classify banks into levels 1 and 2. Level 1 banks settle their positions in clearings (NICS Net) directly in NBO, whereas level 2 banks settle their positions through a bank that does participate directly in the settlement of these clearings in NBO. The payment positions of the level 2 banks are included in the payment position of the level 1 bank and settled in NBO as a combined payment position for that bank. Once settlement is completed in NBO, each level 1 bank credits or debits the internal accounts of the level 2 banks for which they settle. Around 20 banks participate directly in the settlement of NICS clearings in NBO, whereas around 110 banks participate indirectly.

The most important level 1 settlement banks are DNB Bank ASA and SpareBank 1 SMN. The arrangements for the settlement of clearings from NICS are agreed between Norges Bank and the NICS Operations Office, and between Norges Bank and each bank participating in clearing in NICS.

A contingency solution has been established where level 2 banks in NICS can quickly become direct participants in settlement in NBO should the level 1 settlement bank be unable to fulfil its obligations.

Cash leg of securities settlement (VPO)

The cash leg in NOK of the settlement of trades in securities registered in VPS is performed in NBO either directly or indirectly through clearings from VPS. Around 20 banks and two CCPs settle their payments directly in NBO. Other participants in securities settlement in VPS settle their payments via a bank that settles directly in NBO. Before each settlement, each participant deposits liquidity in a subaccount in NBO to cover the settlement. This deposited liquidity cannot be withdrawn from this account until the securities settlement has been completed at Norges Bank. These arrangements for the settlement of the cash leg of VPO are agreed between Norges Bank and VPS, and between Norges Bank and each bank that participates directly in VPO.

CCPs

CCPs for the settlement of financial instruments may hold an account at Norges Bank. At the end of 2016, Norges Bank had agreements with three CCPs on such an account: SIX x-clear Ltd, EuroCCP and LCH Ltd. SIX x-clear and EuroCCP are direct participants in securities settlement in NBO. Each day, SIX x-clear sends one derivatives clearing and one clearing for the securities lending scheme for settlement at Norges Bank. LCH has an account that is used for margin payments and liquidity management.

CLS

Banks participate in the currency settlement system Continuous Linked Settlement (CLS) at various levels. Some banks are direct settlement members in each currency, while most banks send and receive payments via a bank that is a direct participant. Around 65 banks participate indirectly in NOK settlement in CLS, but only five send and receive payments in NOK directly via CLS Bank. Payments of NOK are made between these five banks' accounts and the account that CLS Bank holds in NBO. At present, DNB, Nordea, SEB, Danske Bank and Handelsbanken make such payments in CLS's NOK settlements. Thus these banks make payments both on their own account and on behalf of other banks that participate in CLS settlement. These arrangements for CLS payments are agreed between Norges Bank and CLS, and between Norges Bank and each of the five banks that participate directly in NOK settlements.

Settlement of individual payments

Banks may settle individual payments in NBO via another bank. This does not require a special agreement with Norges Bank.

Q.19.1.2: How does the FMI gather basic information about indirect participation? Which information is collected and how frequently is it updated?

When opening an account at Norges Bank, each participant states which settlements it wishes to participate in, and what else it wishes to use its account for. Norges Bank monitors the extent and breakdown of indirect participation in the settlement of payments in NBO through its contact with banks and their trade bodies. Tiered participation is discussed in the annual report for NBO, and information on the number of indirect participants at the end of each year is obtained for the report. Norges Bank also obtains more detailed information about the organisation of the payment system through its role as licensing body for interbank systems and overseer of the payment system in Norway under the Norges Bank Act.

Risks to the FMI

Q.19.1.3: How does the FMI evaluate its risks arising from these arrangements?

The risk to Norges Bank from tiered participation in NBO is mainly related to the risk to settlement banks participating directly in the settlement of payments in NBO. If the settlement bank is unable to discharge its obligations to its indirect participants, this can cause disruption in the payment system that could also affect the settlement of payments in NBO. As a contingency measure, preparations have been made together with the interbank system NICS for quickly turning indirect participants into direct participants in settlement in NBO as an alternative to the ordinary settlement bank at level 1 in NICS.

Q.19.1.4: What material risks to the FMI arising from tiered participation arrangements has the FMI identified? How has it mitigated these risks?

When it comes to the settlement of clearings, the risk to Norges Bank relates mainly to direct participation. Indirect participants do not pose any significant system-related risk to Norges Bank. The settlement of payments between direct and indirect participants is regulated between those parties. It will be the settlement bank at level 1 in NICS that identifies and manages risks that arise at indirect participants in the settlement of payments.

Key consideration 2

An FMI should identify material dependencies between direct and indirect participants that might affect the FMI.

Q.19.2.1: How does the FMI identify material dependencies between direct and indirect participants that might affect the FMI?

The risk to NBO from dependencies between direct and indirect participants in NBO is assessed as part of the regular review of the risk picture for NBO. In principle, tiered participation does not pose any risks of significance for the settlement of payments in NBO. If a large indirect participant runs into problems, this may nevertheless lead to problems for the indirect participant’s settlement bank, and the indirect participant’s customers may be affected by agreed payments not being executed.

In a contingency situation at a settlement bank that participates directly in NBO, however, there may be disruption in the payment system that could also affect settlement in NBO. In addition, the transition from tiered to direct participation in the settlement of payments in NBO involves administrative and operational adjustments that could present risks. A contingency situation of this kind can also be resolved by the indirect participant instead using a different direct participant as settlement bank for its payments. This will have limited consequences for NBO.

Key consideration 3

An FMI should identify indirect participants responsible for a significant proportion of transactions processed by the FMI and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the FMI in order to manage the risks arising from these transactions.

Q.19.3.1: Has the FMI identified (a) the proportion of activity that each direct participant conducts on behalf of indirect participants in relation to the direct participants' capacity, (b) direct participants that act on behalf of a material number of indirect participants, (c) indirect participants responsible for a significant proportion of turnover in the system, and (d) indirect participants whose transaction volumes or values are large relative to the capacity of the direct participant through which they access the FMI to manage risks arising from these transactions?

As part of its role as the licensing body for interbank systems, and of its responsibility for promoting an efficient payment system and financial stability, Norges Bank assesses structural developments in direct and tiered participation in the settlement of payments. Some direct participants offer tiered participation in several types of settlement. This applies particularly to DNB Bank, which is the settlement bank for around 100 smaller banks and also offers securities settlement and derivatives settlement services. SpareBank 1 SMN is settlement bank for around ten banks in the SpareBank 1 Gruppen alliance, while Danske Bank is the settlement bank for Santander Consumer Bank.

The largest banks are often correspondent banks for other banks that may be major players in currency and securities trading and so generate large payment positions that are settled indirectly in NBO. A number of foreign banks offer such services and thus account for significant proportions of the amounts settled in NBO. These functions pose more of a commercial risk for the participants and for financial stability than a risk to NBO as a settlement system.

Q.19.3.2: What risks to the FMI arise, and how does the FMI manage these risks arising from key indirect participants?

The risk to NBO from tiered participation is considered to be low. The largest banks with the largest payment volumes and values participate directly in NBO. The risk to NBO from tiered participation is associated primarily with taking into use the contingency solution where indirect participants become direct participants in the event of a contingency situation at the ordinary settlement bank.

Key consideration 4

An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.

Q.19.4.1: What are the FMI's policies for reviewing its rules and procedures in order to mitigate risks to the FMI arising from tiered participation? How frequently is this review conducted?

Agreements and rules are in place for Norges Bank and the interbank systems that clarify responsibilities and procedures for both direct and tiered participation in the settlement of payments. Tiered participation in isolation is not considered to pose any significant risk to NBO. It may, however, present risks to these participants' private settlement banks. The risk to NBO is reviewed, and agreements and rules are updated where appropriate. Actions to mitigate risks are assessed partly in the light of experience from day-to-day settlement activities and any incidents.

If an indirect participant changes settlement bank, for example by becoming a direct participant in NBO, both contractual and operational adjustments will be required. Norges Bank has developed a body of agreements with a view to avoiding legal risks in the event of such changes, and exercises are conducted to test the operational procedures for transitioning from tiered to direct participation in NBO. The risk from an indirect participant becoming a direct participant in the settlement of payments in NBO, or vice versa, is therefore considered to be low.

Q.19.4.2: What criteria does the FMI use to determine when mitigating actions are required? How does the FMI monitor and mitigate its risks?

Mitigating actions are considered in conjunction with the regular updates of the risk picture for NBO and in the event of significant changes to systems or operating solutions. Risks are identified, and actions taken, under the framework for risk management at Norges Bank. The importance is of knowing who is responsible for the risk, and to the cost/benefit analysis of possible measures is emphasised. The risk picture for NBO is monitored continuously and updated on the basis of incidents and information from banks, suppliers and other external parties on developments in the payment system. Collaborative arrangements have also been established with internal specialist units in ICT security and security management concerning developments in the risk picture for NBO. Together with other key players in the financial infrastructure, Norges Bank has set up the NBO Continuity Forum. The role of the forum includes exchanging information relevant to the risk picture in the payment system and performing joint exercises.

Assessment

Norges Bank has mechanisms in place for identifying, monitoring and managing significant risks relating to tiered participation in NBO. As a settlement system, NBO in isolation is not exposed to significant risks through tiered participation.

Indirect participants in NBO may, however, present a risk to the stability of the payment system in Norway. This is monitored by Finanstilsynet through its supervision of banks and the financial infrastructure, and by Norges Bank as the licensing and supervisory body for interbank systems and through its role in promoting an efficient payment system. Finanstilsynet and Norges Bank liaise on these matters.

Principle 19 is considered to be observed.

Principle 20: FMI links

An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks.

In reviewing this principle, it should be noted that the questions apply only to FMIs that have established links with one or more other FMIs. Additionally, the term CSD generally refers to a CSD that also operates an SSS. The use of this broader definition for CSD in this principle mirrors market convention in the discussion of FMI links. This principle should be reviewed in the context of Principle 8 on settlement finality, Principle 11 on CSDs, Principle 17 on operational risk, and other principles, as appropriate.

Assessment

Norges Bank has not established links with other FMIs beyond standard SWIFT-based communication to receive payment orders, send confirmation of settlement and exchange other types of message. This principle is not considered to be relevant to NBO.

Principle 21: Efficiency and effectiveness[1]

An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.

This principle should be reviewed in the context of Principle 17 on operational risk, Principle 18 on access and participation requirements, Principle 22 on communication procedures and standards, and other principles, as appropriate.

Key consideration 1

An FMI should be designed to meet the needs of its participants and the markets it serves, in particular, with regard to choice of a clearing and settlement arrangement; operating structure; scope of products cleared, settled, or recorded; and use of technology and procedures.

Q.21.1.1: How does the FMI determine whether its design (including its clearing and settlement arrangement, its operating structure, its delivery systems and technologies, and its individual services and products) is taking into account the needs of its participants and the markets it serves?

Norges Bank's strategy is to concentrate its activities as a settlement bank on ensuring efficient and secure settlement of payments between banks. Norges Bank has implemented a modern real-time settlement system that is also used by other central banks that have upgraded their settlement systems in recent years. The SWIFT network is the main channel for communication with banks and clearinghouses on payment instructions and settlement confirmations. Banks can monitor movements in their accounts in real time and can submit payment orders via the proprietary solution NBO Online, which is similar to standard online banking.

The settlement system combines the risk-mitigating properties of real-time settlement with more efficient use of liquidity through net settlement based on clearing at other FMIs.

Q.21.1.2: How does the FMI determine whether it is meeting the requirements and needs of its participants and other users and continues to meet those requirements as they change (for example, through the use of feedback mechanisms)?

The interbank clearing systems are organised and operated by the banking industry and participants in the securities market, i.e. NICS, CLS, VPS and CCPs. Norges Bank, the banking industry and other stakeholders in the payment system collaborate on the operation and development of settlement and clearing systems. When upgrading settlement solutions at

[1] "Efficiency" refers to resources being used in ways that ensure the greatest possible utility for society, while "effectiveness" refers to technical and practical utility for participants.

Norges Bank, the Bank liaises with these parties to identify which interests and needs need to be addressed in the development of new solutions.

Key consideration 2

An FMI should have clearly defined goals and objectives that are measurable and achievable, such as in the areas of minimum service levels, risk-management expectations, and business priorities.

Q.21.2.1: What are the FMI's goals and objectives as far as the effectiveness of its operations is concerned?

The objective of NBO is secure and efficient settlement of payments between banks that have an account at Norges Bank. The settlement system must comply with relevant international standards and requirements for critical infrastructure. Payment orders are to be settled continuously during NBO's opening hours using the standard operating and backup solutions. In the event of severe disruption, the objective is for all payment orders to be settled on the same day with the help of an enhanced contingency solution.

Q.21.2.2: How does the FMI ensure that it has clearly defined goals and objectives that are measurable and achievable?

The qualitative objectives for the operation of the settlement system can be measured through monitoring of operations, registration and reporting of incidents and disruptions, and measurement of the technical availability of system solutions.

Q.21.2.3: To what extent have the goals and objectives been achieved? What mechanisms does the FMI have to measure and assess this?

Since the current core system for NBO was implemented in 2009, there has been only rare and short-lived disruption in the settlement of payments. There has also been stable operation of other key NBO systems such as the communication solution SWIFT and the system for collateral for loans. In the case of NBO Online, which gives participants access to information on their accounts in NBO and allows them to submit payment orders, some users have at times experienced dropped connections, forcing them to log in again. Operational stability is monitored and reported continuously. Incidents and non-conformances are followed up internally, with external suppliers and with participants in NBO.

Key consideration 3

An FMI should have established mechanisms for the regular review of its efficiency and effectiveness.

Q.21.3.1: What processes and metrics does the FMI use to evaluate its efficiency and effectiveness?

The effectiveness of settlement processes in NBO is evaluated on an ongoing basis, based on day-to-day monitoring and regular reports on operations and non-conformances, both internally and from external suppliers. Regular meetings are held with suppliers where operations reports are reviewed and relevant matters are discussed. There is also healthy contact with the largest banks and clearinghouses on matters concerning the settlement of payments and management of non-conformances.

Organisation, expenditure, pricing structure and other aspects of the design of the settlement system at Norges Bank have been benchmarked periodically against those at other central banks.

Q.21.3.2: How frequently does the FMI evaluate its efficiency and effectiveness?

Efficiency and effectiveness in NBO are reviewed regularly at different levels in connection with monthly, quarterly and annual internal reporting. There are also regular upgrades to IT systems by external suppliers where Norges Bank also orders changes to enhance operational stability, security and effectiveness in settlement processes.

Assessment

NBO needs to be efficient and effective given participants' needs and the market in which NBO operates. The settlement of payments in NBO is a critical function for society, and Norges Bank emphasises the importance of stability and security as well as effectiveness in its ongoing assessment of the operation and development of NBO. This result in additional costs, but comparisons of expenditure with other central banks do not indicate any significant deviation.

Principle 21 is considered to be observed.

Principle 22: Communication procedures and standards

An FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording.

This principle should be reviewed in the context of Principle 17 on operational risk, Principle 21 on efficiency and effectiveness, and other principles, as appropriate.

Key consideration 1

An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards.

Communication procedures

Q.22.1.1: Does the FMI use an internationally accepted communications procedure and, if so, which one(s)? If not, how does the FMI accommodate internationally accepted communication procedures?

Norges Bank uses the international SWIFT infrastructure as the main channel for communication with participants in NBO and clearinghouses with the associated SWIFT standards for message formats. The 20 or so largest participant banks in NBO use the SWIFT network for their payment orders and communication with NBO. Smaller banks use the NBO Online solution to submit payment orders which are then converted into SWIFT format and sent for settlement in NBO. Each bank's access to NBO Online is based either on use of the network for banks' access to liquidity information in NICS, with a connection to NBO, or on a direct connection to Norges Bank's network solution. Some banks also have access to NBO Online via a SWIFT-based communication solution.

Q.22.1.2: If the FMI engages in cross-border operations, how do the FMI's operational procedures, processes and systems use or otherwise accommodate internationally accepted communication procedures for cross-border operations?

The SWIFT infrastructure also serves as the communication channel between NBO and participants abroad. In addition, the SWIFT network is used for communication with other Scandinavian central banks about transactions in the Scandinavian Cash Pool.

Communication standards

Q.22.1.3: Does the FMI use an internationally accepted communications standard and, if so, which one(s)? If not, how does the FMI accommodate internationally accepted communication standards?

The SWIFT network is the main channel for communication to and from NBO. This dictates the message formats and other communication standards.

Q.22.1.4: If the FMI engages in cross-border operations, how do the FMI's operational procedures, processes and systems use or otherwise accommodate internationally accepted communication standards for cross-border operations?

The SWIFT network is also used as the main channel for communication with participants and central banks abroad.

Q.22.1.5: If no international standard is used, how does the FMI accommodate systems that translate or convert message format and data from international standards into the domestic equivalent and vice versa?

In Norway, banks also use a national message standard for payment orders, such as NIBE. These messages are converted into SWIFT format in NICS before being forwarded for settlement in NBO.

Assessment

Norges Bank uses the SWIFT network as the main channel for communication between NBO and participants in NBO. This is an internationally recognised standard. Banks that do not use SWIFT themselves can submit payment orders in NBO Online, which automatically converts them into SWIFT format before they are sent for settlement in NBO. These participants can also use a bank that does use SWIFT as a correspondent bank to settle their payments in NBO.

Principle 22 is considered to be observed.

Principle 23: Disclosure of rules, key procedures, and market data

An FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.

In reviewing this principle, information should be disclosed to the extent that it would not risk prejudicing the security and integrity of the FMI or divulging commercially sensitive information. This principle should be reviewed in the context of Principle 8 on settlement finality, Principle 13 on participant default rules and procedures, Principle 24 on the disclosure of market data by trade repositories, and other principles, as appropriate.

Key consideration 1

An FMI should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.

Rules and procedures

Q.23.1.1: What documents comprise the FMI's rules and procedures? How are these documents disclosed to participants?

The rules and procedures for NBO are set out in laws, regulations, guidelines, terms and other documents. These documents are publicly available in the law database Lovdata and on Norges Bank's website, which includes separate pages for NBO. These pages also refer to relevant provisions in the NBO Terms and Conditions.

Q.23.1.2: How does the FMI determine that its rules and procedures are clear and comprehensive?

The question of whether rules and procedures are clear and comprehensive is assessed when making changes to system and operating solutions, when conducting audit reviews, and in the light of experience of their use, including contact with participants in NBO, both directly and via collaborative fora.

Disclosure

Q.23.1.3: What information do the FMI's rules and procedures contain on the procedures it will follow in non-routine, though foreseeable, events?

The management in NBO of events that are non-routine but foreseeable is dealt with explicitly in the operational rules, for example in the NBO Terms and Conditions, the NBO operating schedule, the guidelines on collateral for loans, and the separate circular on the handling of a participant placed under public administration or into bankruptcy.

Q.23.1.4: How and to whom does the FMI disclose the processes it follows for changing its rules and procedures?

Changes to the rules for NBO at different levels are made on the basis of established administrative processes. One general rule is that all significant changes are circulated to participants for comment before the changes are rolled out. If the changes are to operational procedures involving banks or clearinghouses, the changes will normally be discussed along the way and may be developed collaboratively. The NBO Terms and Conditions set specific deadlines for the publication of some types of change. These include changes to the operating schedule for NBO, which must be published a month before entering into force, and changes to annual prices and fees, which must be published two months before entering into force.

Q.23.1.5: How does the FMI disclose relevant rules and key procedures to the public?

Relevant rules and key procedures for NBO are publicly available on Norges Bank's website. The public may also subscribe to circulars and other news from Norges Bank by e-mail.

Key consideration 2

An FMI should disclose clear descriptions of the system's design and operations, as well as the FMI's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the FMI.

Q.23.2.1: What documents comprise information about the system's design and operations? How and to whom does the FMI disclose the system's design and operations?

In addition to the formal regulatory framework, Norges Bank has produced information on the design of NBO and the operational characteristics of the settlement system in separate documents available on the Bank's website. These include the document *Norges Bank's settlement system – main functions*, which provides a general description of the rules for NBO and its features. The annual and monthly reports for NBO contain information on accounts, settlements and collateral, along with supplementary statistical material. Norges Bank's annual report also includes a brief mention of NBO. This material can contribute to participants' understanding of their risk in the settlement system.

Q.23.2.2: How and to whom does the FMI disclose the degree of discretion it can exercise over key decisions that directly affect the operation of the system?

Norges Bank's right to take decisions material to the operation of NBO is set out in the formal regulatory framework, i.e. laws, regulations, guidelines and account terms.

Q.23.2.3: What information does the FMI provide to its participants about their rights, obligations and risks incurred through participation in the FMI?

The NBO Terms and Conditions provide detailed and legal-based information for participants on their rights and obligations when participating in NBO. More general rules are set out in laws and regulations, to which the NBO Terms and Conditions refer.

Key consideration 3

An FMI should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the FMI's rules and procedures and the risks they face from participating in the FMI.

Q.23.3.1: How does the FMI facilitate its participants' understanding of the FMI's rules, procedures and the risks associated with participating?

Participants' understanding of the risks associated with participating in NBO depends largely on their own internal risk assessments which they are required to perform under the rules that apply to them as financial institutions. The documentation of rules and operational procedures for NBO also forms part of the basis for this understanding. Participants may contact Norges Bank directly with questions in this context. All new participants must also complete a course in NBO Online, which provides Internet-based access to information from their own accounts. A user guide to NBO Online has been prepared which also contains some information on contingency procedures. Courses and training are provided at participants' request and as required.

Q.23.3.2: Is there evidence that the means described above enable participants' understanding of the FMI's rules, procedures and the risks they face from participating in the FMI?

The most important evidence that the documentation and training for participants result in a good understanding of participation in NBO is that the settlement of payments has been stable and lived up to expectations for many years. Occasionally, there are issues that may be due to participants failing to follow applicable routines and procedures in NBO, but there are rarely any significant problems. Experience shows that participants generally comply with the applicable rules and procedures. Understanding of the rules is supported by joint exercises to test contingency procedures and joint fora for exchanging information and opinions.

Q.23.3.3: In the event that the FMI identifies a participant whose behaviour demonstrates a lack of understanding of the FMI's rules, procedures and the risks of participation, what remedial actions are taken by the FMI?

If Norges Bank detects a lack of understanding of the rules and procedures for NBO, it will get in touch with one of the participant's designated contacts to address the issue. The participant may be called to a meeting to go through the procedures in question. If there is a material breach of the NBO Terms and Conditions, Norges Bank may suspend an account for a specified period.

Key consideration 4

An FMI should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The FMI should provide clear descriptions of priced services for comparability purposes.

Q.23.4.1: Does the FMI publicly disclose its fees at the level of its individual services and policies on any available discounts?

Prices and fees for NBO are set each calendar year and are publicly available on Norges Bank's website in the form of circulars published at least two months before they enter into force. There are no discount arrangements for settlement services in NBO, but participants can themselves choose which settlement functions they wish to use.

Q.23.4.2: How does the FMI notify participants and the public, on a timely basis, of changes to services and fees?

Changes to settlement services and prices are communicated to participants and disclosed to the public in advance. Significant changes will be circulated to participants or their representative bodies for comment in good time before they enter into force.

Q.23.4.3: Does the FMI provide a description of its priced services? Do these descriptions allow for comparison across similar FMIs?

Prices and fees for NBO are directly related to which settlement functions participants use and, where appropriate, which breaches of the NBO Terms and Conditions trigger the fees.

The revenue generated by pricing in NBO is roughly on a par with that at comparable central banks such as Sveriges Riksbank in Sweden. Central banks have the exclusive right to settle payments in their national currency, and so a comparison of prices across central banks is of limited relevance. It is important, however, that the largest banks settle their payments at the central bank and that the most important settlements take place there. The pricing structure and price levels should support this objective.

Q.23.4.4: Does the FMI disclose information on its technology and communication procedures, or any other factors that affect the costs of operating the FMI?

Norges Bank discloses information on the main features of the design of NBO, including operational characteristics and communication solutions. Where changes in costs impact on prices, for example when introducing new system or operating solutions, information about this is given to participants or their representative bodies.

Key consideration 5

An FMI should complete regularly and disclose publicly responses to the CPSS-IOSCO disclosure framework for financial market infrastructures. An FMI also should, at a minimum, disclose basic data on transaction volumes and values.

Q.23.5.1: When did the FMI last complete the CPSS-IOSCO Disclosure framework for financial market infrastructures? How frequently is it updated? Is it updated following material changes to the FMI and its environment and, at a minimum, every two years?

No self-assessment of NBO under the CPMI-IOSCO framework has previously been published.

Q.23.5.2: What quantitative information does the FMI disclose to the public? How often is this information updated?

Norges Bank publishes a monthly report on NBO with statistics for turnover, transaction volumes and collateral values. An annual report is also produced for NBO with key figures for the past and previous years.

Q.23.5.3: What other information does the FMI disclose to the public?

The monthly and annual reports provide information on any incidents, changes and improvements as well as statistical material. There is also mention of other relevant matters, such as participation in international collaborative fora and the follow-up of critical service suppliers. The NBO web pages contain information on which institutions participate in NBO.

Q.23.5.4: How does the FMI disclose this information to the public? In which language(s) are the disclosures provided?

All information mentioned under Q.23.5.2 and Q.23.5.3 is available from Norges Bank's website. The monthly reports also sent directly to the designated contacts for participants in NBO. All information is issued in Norwegian. Circulars on the operating schedule for NBO, prices and fees are published in English, as are the guidelines for collateral for loans.

Assessment

Contingency procedures for NBO are shared with relevant external parties, partly through the NBO Terms and Conditions and joint procedures with NICS, VPS and CCPs. For security reasons, it is not appropriate to disclose these procedures publicly.

Information on the rules and guidelines for participation in NBO are publicly available, and participants are offered the necessary training in the use of NBO Online, which provides access to each participant's account in NBO. Otherwise, the use of SWIFT as the standard communication solution is familiar for the largest banks.

The list of participants in NBO, which is available on Norges Bank's website, will be structured on the basis of the types of settlement in which each participant participates.

With the publication of this self-assessment for NBO against the PFMIs, Principle 23 is considered to be observed.

Principle 24: Disclosure of market data by trade repositories

A TR should provide timely and accurate data to relevant authorities and the public in line with their respective needs.

This principle should be reviewed in the context of Principle 17 on operational risk and other principles, as appropriate.

Assessment

Principle 24 applies to trade repositories and has not been assessed for NBO.