NORGES BANK

Annual Report on Payment Systems

2011 | May 2012

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NORGES BANK

Norges Bank's responsibility and annual reporting

Norges Bank's responsibility in relation to payment systems

Norges Bank is responsible for promoting robust and efficient payment systems. The Norges Bank Act states that Norges Bank shall promote an efficient payment system in Norway and vis-à-vis other countries. Norges Bank primarily does this in three ways:

- by providing secure and efficient settlement of interbank payments in banks' accounts in Norges Bank,
- by supplying banknotes and coins in a manner that promotes an efficient payment system and provides assurance against counterfeiting. This also provides a supply of payment instruments in situations where other payment instruments are not available, and
- by monitoring important developments in the payment system and identifying ways to improve the system's resilience and efficiency.

In addition, the Payment Systems Act gives Norges Bank responsibility for the licensing and supervision of systems for clearing and settlement of interbank money transfers (interbank systems). Interbank systems are required to be designed and operated to support the stability of the financial system. Norges Bank supervises system owners' compliance with the terms of the licence and may impose additional requirements if necessary.

Norges Bank's work on payment systems complements that of Finanstilsynet (Financial Supervisory Authority of Norway). Norges Bank has the primary responsibility for ensuring that interbank system operations comply with legislation and licence terms, while Finanstilsynet has the primary responsibility for overseeing systems for retail payment services, including supervising the technical security and operational stability of systems for payment services. Finanstilsynet publishes an annual analysis of risk and vulnerability, highlighting important issues related to the use of ICT in the financial sector. Norges Bank and Finanstilsynet are in regular contact and exchange information.

Annual Report on Payment Systems

This report is published as part of the work to promote robust and efficient payment systems. The Executive Board has discussed the report and taken note of its conclusions. The report consists of two main sections. Section 1 discusses developments in retail payment services, while Section 2 addresses interbank systems. The two sections reflect Norges Bank's different responsibilities in the two areas:

- Section 1 analyses developments in retail payment services and assesses whether and how efficiency can be improved. Except for cash-related work, Norges Bank's only measures relating to systems for payment services are publishing analyses and providing advice.
- Section 2 reflects Norges Bank's tasks and instruments for overseeing and supervising interbank systems and other financial infrastructure. This work focuses on robustness and consequences for financial stability. Section 2 provides an account of oversight activities and security assessments, which makes it an important complement to the *Financial Stability* report.

The report's target groups include other government authorities, owners and operators of payment systems, financial institutions and their industry organisations, enterprises, the media, academia and students of economics. To contribute to empirical knowledge on payments and payment systems, statistics are made available in machine-readable format.

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Main points

It is important for a well functioning economy that payments can be executed swiftly, securely and at low cost. Norges Bank oversees and analyses developments in the payment system. Based on these analyses, Norges Bank assesses the payment system in Norway as efficient.

Nevertheless, there is room for improvement. Electronic communication for payments between businesses can yield substantial gains for society. Payment costs can be reduced if more invoices are issued electronically. The government's requirement that its suppliers must use electronic invoicing as from summer 2012 can make a contribution to this end.

A feature of an efficient payment system is the existence of means of payment and payment instruments that meet various needs so that users can choose the solutions best suited to their needs. Banks should not reduce the public's access to cash but should rather bolster the cost coverage of overall cash services. Moreover, in practice, cash still appears to be the primary backup solution for banks' electronic payment systems. In Norges Bank's view, banks must take this into account in their planning.

Payment services evolve. New technologies make new payment solutions possible, such as using mobile phones as a payment instrument. New ways to shop, with rising online purchases, also affect systems for payment services. There are new payment service providers outside the banking sector. Banks are planning new services and changes in interbank systems' operating schedules to make payment services faster. As long as security and operational stability are satisfactory, initiatives to render payment services faster and more efficient are positive.

Secure and stable operation of IT systems is essential for payment services to function efficiently. System owners are responsible for ensuring that users are provided with secure and efficient solutions and that there are effective backups. Banks have largely outsourced operation of IT systems to external data processing centres. In Norges Bank's view, banks must take clearer responsibility for services operated by external providers, as Finanstilsynet (Financial Supervisory Authority of Norway) has also pointed out.

All transfers between banks take place in interbank systems, which are systems for clearing, settling or transferring money between banks. It is essential for financial stability that interbank systems function as intended at all times. Losses arising from an interbank system failure can be considerable for society. Changes to systems entail a risk of operating problems. In 2011, a number of changes relating to Norwegian interbank systems were undertaken, including the introduction at Norges Bank of a new liquidity management system and a new solution for settling payments for the government. The changes were implemented without any adverse impact on system operation.

The financial infrastructure comprises various systems for registering, clearing or settling payments, securities, derivatives or other financial transactions. In overseeing the financial infrastructure, considerable emphasis is placed on the international principles drawn up by the Committee on Payment and Settlement Systems (CPSS). Norges Bank has previously evaluated Norwegian interbank systems in accordance with these principles and concluded that the risk linked to the systems is satisfactorily low. Annual updates of the evaluation are performed in the light of changes to these systems. Moreover, Norges Bank is of the view that Norwegian interbank systems compare well internationally. By and large, they meet international standards for best practice for such systems.

The financial crisis revealed the importance of robust systems in supporting the functioning of financial markets and financial institutions in periods of stress. Internationally, work is underway to strengthen financial market infrastructures, including over-the-counter (OTC) trading in interest rate, credit and foreign exchange derivatives.

The European Commission has proposed requirements for registering OTC derivatives in trade repositories, the use of a central counterparty (CCP) to settle trades in certain derivatives and the establishment of common rules for CCPs. In addition, CPSS and the International Organization of Securities Commissions (IOSCO) has drawn up new principles for the design and operation of financial market infrastructures. The authorities in Norway and most other countries will apply the new principles in their oversight and supervision of financial market infrastructures. These initiatives may serve to bolster financial stability globally.

To promote a single securities market in Europe, the Eurosystem is developing T2S, a common IT solution for settling securities trades in EUR and other European currencies. Norwegian market participants have decided not to participate in T2S from the go-live in 2015/2016. Nevertheless, they see long-term benefits of T2S and will consider participation at a later date. Hence, there is no basis at present for Norges Bank to consider arrangements for settling trades in NOK in T2S. If market participants wish to participate in T2S at a later time, and the terms of the agreement adequately protect Norges Bank's interests, Norges Bank may consider arrangements for settling trades in NOK in T2S. Norges Bank has notified the European Central Bank (ECB) of this in a letter dated 10 May 2012.

1. Retail payment services

Individuals and businesses pay for purchases in shops using various payment cards or cash, while bills are primarily settled using online banking. When individuals and businesses make electronic payments, the banks involved must see to it that funds are transferred from bank to bank. This takes place in interbank systems, which are systems for clearing, settlement and transferring funds between banks.

Section 1 of the *Report* discusses developments in retail payment systems, while Section 2 discusses developments in interbank systems. Section 1 begins with an overview of developments in the use of various payment instruments and banks' fees for and income from payment services. When fees charged for payment services reflect the cost of producing the services, this results in more cost-effective resource use. Income generated by payment services can support providers' willingness to invest in secure and sound payment solutions in the future.

Secure and stable operation of payment services is important for ensuring public confidence in these services and the efficient functioning of the payment system. There were certain problems with card system operation, etc. in 2011. Finanstilsynet (Financial Supervisory Authority of Norway) has therefore stepped up its efforts to ensure that banks have control over their own systems. Finanstilsynet is responsible for monitoring individual retail payment systems, while Norges Bank oversees the overall efficiency of the payment system (see Section 2.1).

The payment market changes as new services develop and new payment service providers enter the market. The *Report* discusses both international and domestic trends and concludes with a look at developments in the Single Euro Payments Area (SEPA).

1.1 Use of cash

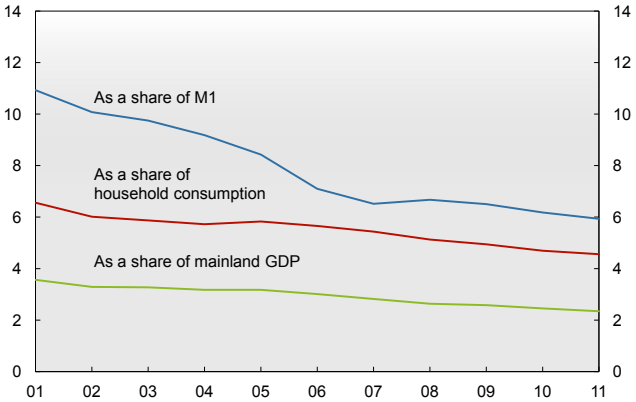
Norges Bank's obligation to issue banknotes and coins means that the central bank has a duty to ensure that society has access to cash as a means of payment. Banks can make cash withdrawals on the basis of their deposits with Norges Bank. The public must obtain cash from banks. Thus, in the area of cash distribution, Norges Bank functions as the wholesaler and banks function as retailers.

Demand for cash is determined by users, who use cash to the extent that meets their needs. One reason for the use of cash is that it enables final settlement without the use of electronic devices.

Over the past four years, the total quantity of notes and coins in circulation has remained more or less at the same level. In 2011, the average for the year was just over NOK 50bn. There was a more marked change for some denominations. In recent years, the number of 1000-krone notes has been reduced, while the quantity of 500-krone and 200-krone notes has increased. This may be due to the denominations banks choose to dispense from ATMs. On 1 May 2012, the 50-øre coin ceased to be legal tender.

Cash as a share of the value of means of payment available to the public (M1) was approximately 6% in 2011 (see Chart 1.1). The share has been reduced by almost half over the past ten years and is lower than in most other countries (see Chart 1.2). The value of cash in circulation has also shown a decline over time as a share of mainland

Chart 1.1 Value of cash in circulation as a share of means of payment (M1), household consumption and mainland GDP. Percent. 2001 – 2011



Sources: Statistics Norway and Norges Bank

GDP and household consumption, even though the figures were approximately unchanged from 2010 to 2011.

Users can obtain cash at bank branches, from ATMs and at many point-of-sale (POS) terminals. The number of ATMs has changed little in the past decade (see Chart 1.3). The number of withdrawals from ATMs was at its highest in 2001 and has declined by 28% since then. At the same time, there are more POS terminals, where customers can withdraw cash. But the number of cash withdrawals at POS terminals is also decreasing. In 2011, 61m goods purchases were accompanied by a cash withdrawal, a decline of 7% from 2010.

The reduction in the share of cash as a means of payment and decline in withdrawals from ATMs and at retail outlets suggest that the use of cash for payments is falling, while card use is increasing. Nevertheless, cash plays an important role as a means of payment, since it makes payment transactions easy and efficient for customers, especially for small amounts. Furthermore, banks view cash as a backup solution for electronic payment systems.

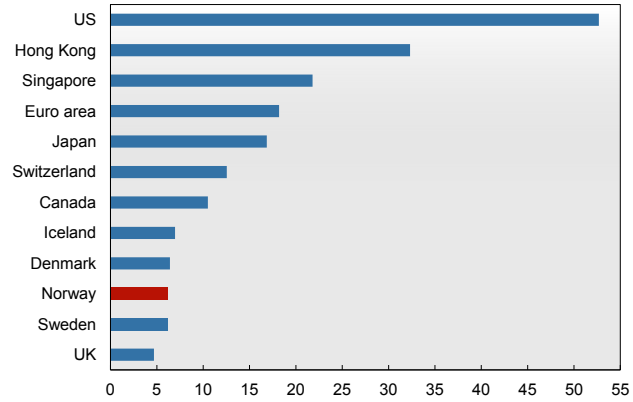
In a letter to the Ministry of Finance of 30 September 2011[1], Norges Bank expressed the view that the establishment of legal authority to require banks to provide for such a backup solution should be considered, i.e. that banks would be in a position to assure the supply of cash to their customers in the event electronic systems fail.

In November 2011, Finance Norway (FNO), the Finance Sector Union of Norway, Virke (the Enterprise Federation of Norway) and IKT-Norge (representing the IT industry) wrote a joint letter to the Ministry of Finance in which they proposed the appointment of a law commission to examine the impact of giving equal status to deposit money and cash. The organisations argued that this would result in security and efficiency gains for enterprises, employees and society as a whole.

In its response, the Ministry of Finance stated that the organisations' proposal to give sellers the option of refusing cash to settle transactions would deprive Norges Bank's notes and coins of their status as legal tender. This would weaken the public's confidence in cash and pose considerable challenges to persons with no alternative means of settling transactions. The Ministry of Finance thus rejected the proposal to consider giving deposit money and cash equal status.

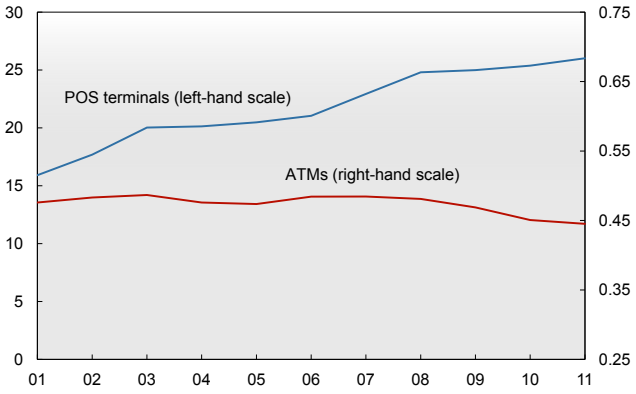
1 See Norges Bank (2011a).

Chart 1.2 Cash as a share of means of payment (M1) in selected countries.
Percent. 2010



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

Chart 1.3 Number of point-of-sale (POS) terminals and ATMs.
Per thousand inhabitants. 2001 – 2011



Source: Norges Bank

1.2 Card payments

At end-2011, the number of payment cards issued in Norway amounted to 12.3m, an increase of 1.3% on the previous year. The number of payment cards has risen over several years, but the increase in 2011 was relatively moderate, attributable to slower growth in the number of debit cards.

In 2011, cards issued in Norway were used for 1.49bn payments and cash withdrawals, equivalent to approximately 300 transactions per inhabitant. The use of payment cards increased by 9% compared with the previous year. The value of card payments corresponds to half of household consumption in Norway (see Chart 1.4).

Compared with other countries, Norway is among the word leaders in card use (see Chart 1.5).

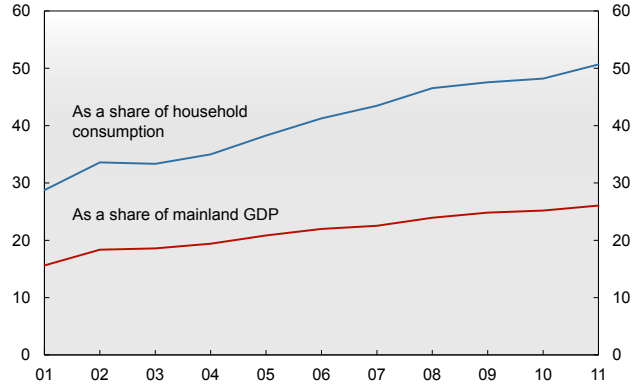
The number of goods purchases using payment cards grew by 10%, totalling 1.4bn in 2011. Payment cards are increasingly used exclusively for goods purchases, without an accompanying cash withdrawal. The use of payment cards for cash withdrawals from ATMs has also declined. The number of such withdrawals has decreased by 4% since 2010 to 92m in 2011.

While the increase in the number of card payments is high, turnover rose somewhat more moderately, by approximately 6%. The reason is that cards are increasingly being used for low-value payments instead of cash. The average amount per transaction using Norwegian cards declined from NOK 478 in 2010 to NOK 466 in 2011.

Use of Norwegian cards abroad grew sharply in 2011, by 19%, a figure that also includes use of Norwegian cards for online payments on foreign networks. Use of foreign cards in Norway increased by 12% in the same period.

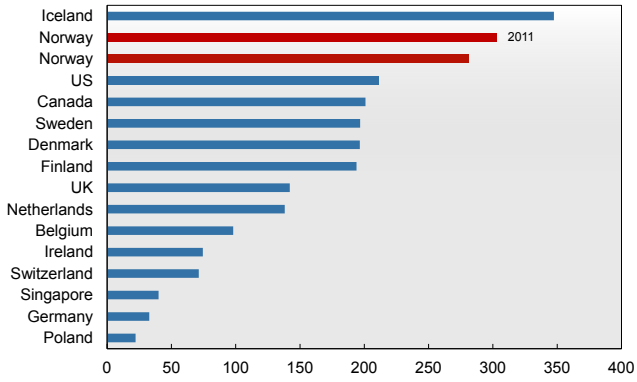
The BankAxept debit card system has a high market share (see Chart 1.6) and is cost-efficient (see Gresvik and Haare (2009)). At the same time, card fees are low and bank revenues from payment services in isolation are low.

Chart 1.4 Value of goods purchases using payment cards. As a share of household consumption and mainland GDP. Percent. 2001 – 2011



Source: Norges Bank

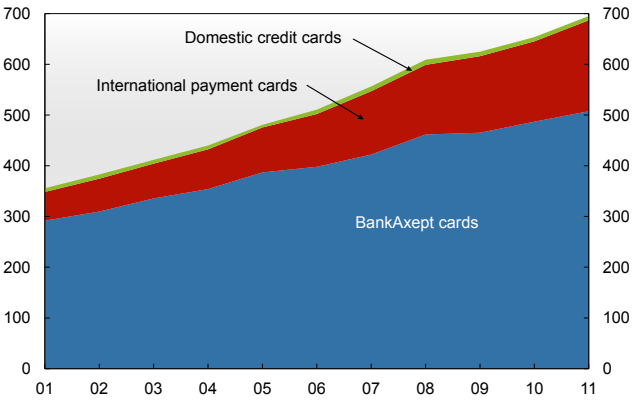
Chart 1.5 Number of card transactions per inhabitant. Payments and cash withdrawals. 2010[1]



1) For Norway, numbers for 2011 are also included

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

Chart 1.6 Use of payment cards. In billions of NOK. 2001 – 2011



Source: Norges Bank

Instant payments

Banks' credit risk linked to payment settlements was eliminated in summer 2000, when banks stopped crediting customer accounts before receiving payment themselves in the Norges Bank settlements. This is called crediting after settlement. The disadvantage is that payees must wait for payment until after settlement in Norges Bank. Banks' customers may need to make certain payments faster than this solution permits, for example, when privately buying or selling second-hand goods.

On 3 May 2012, the banking industry approved a solution permitting "instant payments" to address this need. These are credit transfers in NOK that are made without delay between customer accounts in different banks. The payee's bank is obliged to increase the available balance on the payee's account *instantly* on the basis of a message[1] from the payer's bank. These payments entail a liability on the payee bank to the customer *before* the bank has actually received funds in settlement. This is called crediting before settlement and entails a credit risk for banks. To reduce this risk, a limit of NOK 500 000 has been introduced for payment orders of this kind.

This limit has been set to strike a balance between desired areas of use and interbank risk. While an individual bank may set lower limits for transfers from its customers, payee banks are obliged to accept instant payments of up to NOK 500 000. Instant payments may not be used for transactions covered by an OCR[2] agreement, i.e. payments with a customer identification number.

The total transaction amount for instant payments is expected to make up only a small portion of banks' payment services. Thus, no measures have been introduced to limit the settlement risk they entail in the form of a cap on positions, for example. The banking industry plans to test this solution in autumn 2012, with full implementation likely in 2013.

Losses arising from insolvency

Instant payments are covered by a clearing agreement[3] between participants, which is also binding if a bank fails. In such a situation, the NICS Operations Office is to maintain an overview of all unsettled instant payments to and from the insolvent bank received by the payment system up until the exact time the bank is placed under public administration. If the insolvent bank has a positive clearing position, it is to be credited to the bankruptcy estate. If the position is negative, the NICS Operations Office is to contact the administrators in bankruptcy to have funds set aside to cover the clearing. If sufficient funds have not been set aside, the uncovered position must be apportioned among the creditor banks. The NICS Operations Office will present a claim on the estate for the uncovered position on behalf of the banks.

1 These payments must be specially marked by the payer when using online banking.
2 Optical Character Recognition. An OCR agreement is a service from Nets for automated registration of incoming payments.
3 Claims arising between an insolvent bank and other banks in connection with instant payments are subject to multilateral netting.

As a result, banks are becoming increasingly interested in promoting international payment cards, which offer a higher revenue potential. This may have a negative impact on banks' willingness to continue to develop BankAxept.

At end-2011, there were approximately 128 200 POS terminals that accepted BankAxept cards, in 100 800 retail outlets and other merchant locations. These terminals also accept national credit cards and payment cards issued by international card companies. The increase in POS terminals in recent years has been moderate (see Chart 1.3).

1.3 Credit transfers and direct debits

A total of 379m online banking payments were made in 2011, an increase of 2% on the previous year, accounting for 66% of all credit transfers and direct debits.

The number of paper giros from businesses and consumers fell by 16% between 2010 and 2011 and now account for around 4% of credit transfers and direct debits.

Direct debits (mostly AvtaleGiro) increased by nearly 10% on the previous year, but only account for about 13% of credit transfers and direct debits. In order to make direct debit payments, both the payee and the payer must have an agreement with their bank. At end-2011, 13 800 businesses had a total of close to 13.2m direct debit agreements with customers, an increase from 2010 of 4% and 10%, respectively.

The remainder of the overall market, around 17%, includes payments from company terminals, electronic standing orders and over-the-counter cash payments.

Chart 1.7 shows payment services used by retail customers to pay bills etc.

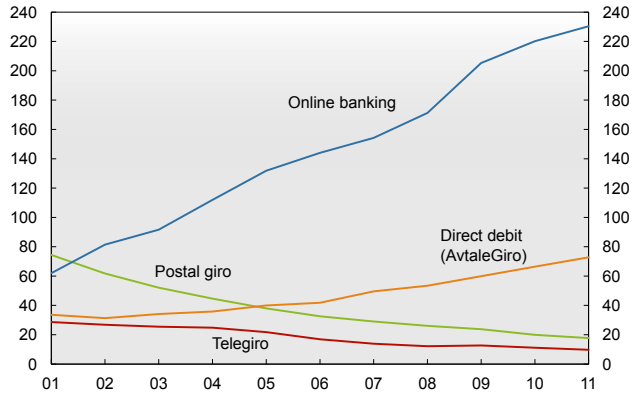
Invoices can either be sent on paper via postal services or directly to the online bank as e-invoices. The number of e-invoicing agreements with retail customers increased by 25% in 2011. Approximately 950 businesses can now send e-invoices to retail customers. About 34m e-invoices were issued in 2011, an increase of 17% since 2010.

Payment costs can be reduced if more invoices are paid electronically (see Norges Bank (2011b)). The potential for reducing costs is particularly high for business-to-business (B2B) and business-to-government (B2G) payments.

The *Annual Report on Payment Systems* for 2010 included a discussion of Banknettverkets[2] B2B solution. This solution handles both internal accounting processes for payments in the enterprise and the payment operation.

The e2b format is a Norwegian B2B e-invoicing format, and e2b solutions are currently offered by at least 10 IT companies. These companies have signed a cooperation

Chart 1.7 Credit and direct debit transfers (retail customers). Millions of transactions. 2001 – 2011



Source: Norges Bank

agreement to make it easier for recipients and billers to perform billing transactions of all kinds, even when different message centres are used. The e2b format is widely used in the business and public sectors. Files are transmitted between businesses in a format that enables invoices to be recorded automatically in accounting systems. The solution is not integrated with a payment system in the same manner as the e-invoicing solution offered by banks. A possible advantage of this system is that a business that receives e2b invoices can choose the method of payment. On the other hand, the business must register its payments manually.

It is the Government's aim that government agencies require e-invoices and electronic credit notes in all contracts signed after 1 July 2012. Work is underway to establish a legal basis for requiring electronic invoicing from government suppliers. Since this legislation is not yet in place, as a provisional solution, the Ministry of Government Administration, Reform and Church Affairs has requested government agencies to require e-invoices and electronic credit notes in supplier contracts signed after 1 July 2012.[3] Invoices and credit notes shall comply with the *Elektronisk handelsformat* (EHF) standard.

2 This network was set up in 2008 and comprises the following members: DNB, Fokus Bank, Handelsbanken, Nordea, SEB, Sandnes Sparebank, Sparebanken Møre, Sparebanken Vest, Sparebanken Sogn og Fjordane, Swedbank and the Terra and Sparebank 1 banking alliances.

3 This was set out in a circular (see Ministry of Government Administration, Reform and Church Affairs (2011a)).

International payment cards

In October 2011, the Ministry of Finance requested Finanstilsynet (Financial Supervisory Authority of Norway) to establish a project group to assess measures in the market for international payment cards in Norway, focusing in particular on the need for regulation of the fees charged by international card companies. The project group also included representatives from the Competition Authority and Norges Bank. The group was established to follow up similar assessments carried out in 2004 and 2007. Both assessments concluded with the recommendation that the Ministry, in view of developments that had taken place, should not introduce direct regulation of this market.

The group submitted its report to the Ministry of Finance on 31 January 2012.[1] The group's recommendations are partly based on information from a survey of developments in merchant service fees[2] and interchange fees[3] over time. This survey is based on data gathered from acquirers and card companies in the Norwegian market and shows a decline in both fees in the period 2006–2011. Developments in Norway are approximately the same as in other countries.

The project group does not recommend regulation of merchant service fees. The group expressed the view that such a direct regulation of fees that only applied to Norway could have adverse effects on innovation in the area of payment solutions and on competition in the acquirer market.

Nor does the project group recommend regulating interchange fees at the present time. The need for such regulation must be considered in the light of competition legislation. It is appropriate to defer considering regulation in the Norwegian market pending a conclusion from the EU concerning regulation of interchange fees[4].

In the opinion of the project group, measures should be considered whereby merchant service fees can more easily be passed on to customers, for example by requiring terminal owners or suppliers to install the appropriate technology.

The project group recommends close monitoring of further developments in interchange fees and merchant service fees in Norway and that a new assessment of regulatory measures in the market for international payment cards be undertaken at the latest in four years' time.

The project group's report was issued for consultation by the Ministry of Finance on 19 April 2012. The consultees were asked, among other things, to comment on whether payment terminals should be designed to enable merchants to charge fees from customers using international payment cards. The deadline for submission of comments is 15 June 2012.

1 See Betalingskortprosjektgruppa (payment card project group) (2012).

2 A fee deducted from the transaction amount for point-of-sale transactions using a card. The fee is a percentage of the transaction amount.

3 A fee paid by the acquirer to the card issuer for every transaction using an international payment card.

4 The EU has initiated a process to consider regulation of international card companies' interchange fees. This work is in addition to disputes and ensuing settlements concerning interchange fees reached between the EU and the card companies Visa and MasterCard.

Another aim is for the same requirement to apply to agreements with local government and the wider public sector from 1 July 2013.

The present value of cost savings over a ten-year period of introducing e-invoicing in central government agencies was estimated at NOK 1.1bn in 2009 (Report No. 36 (2008-2009) to the Storting). A more recent estimate shows gains from introducing e-invoicing in the central government sector of up to NOK 1.9bn (in 2011 kroner) for the period 2009-2023.[4] In addition, there are a number of non-quantified beneficial effects. For the local government sector (municipal and county administrations)[5], estimates indicate an expected

4 See Ministry of Government Administration, Reform and Church Affairs (2011b).

5 See Ministry of Government Administration, Reform and Church Affairs (2011c).

present value of up to NOK 1.4bn (in 2011 kroner) in the period to 2024, depending on the basis of the calculation.

Norges Bank is working with Statistics Norway to develop a system for compiling statistics on the various e-invoicing solutions. The plan is for such statistics to be delivered to Statistics Norway as from the 2012 reporting year at the earliest.

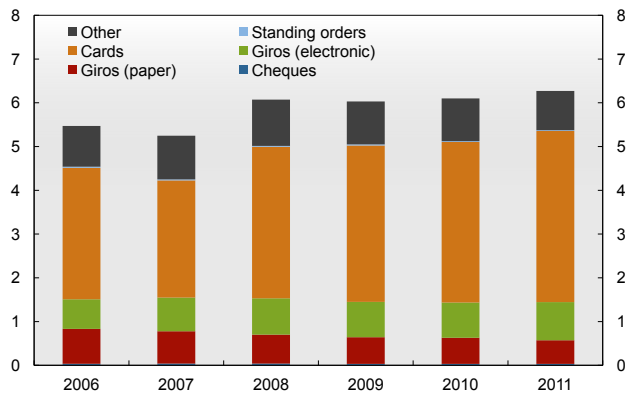
1.4 Prices for and income from payment services

Fees

Banks charge fees for payment services. These fees differ for customers in and outside banks' customer loyalty schemes. In loyalty schemes, customers are given discounts against payment of a fixed annual fee or related to particular accounts or services. At the beginning of 2012, the average annual fee in Norway for BankAxept cards combined with the international card VISA was approximately NOK 208 for loyalty scheme customers and NOK 260 for non-loyalty scheme customers. This is an increase of 6% and 9%, respectively, on the previous year. The average fee for goods purchases using BankAxept also rose in 2011 and at the beginning of 2012 was NOK 0.10 for loyalty scheme customers and approximately NOK 1.80 for non-loyalty scheme customers.

Fees for bill payment vary considerably across different forms of payment. The considerable variation in fees reflects the cost of producing the services (see Gresvik and Haare (2009)). The cost of electronic services, such as online banking, direct debit (AvtaleGiro) and e-invoices, is markedly lower for banks than paper-based services, such as over-the-counter giro payments. Fees for paper-based payment services increased through 2011. Standard fees for non-loyalty scheme customers rose by 8% for postal giros, to around NOK 8 at the beginning of 2012. For over-the-counter cash payments, the fee rose by 25% to approximately NOK 80. In contrast, payments using online systems are free.

Chart 1.8 Banks' income from payment services.
In billions of NOK. 2006 – 2011



Source: Norges Bank

Income

In 2011, banks' income from payment services came to nearly NOK 6.3bn, an increase of just over NOK 0.2bn since 2009. Over half of the income came from payment cards (see Chart 1.8). Increased use of payment cards has boosted income from payment cards. Between 2006 and 2011, the number of goods purchases made using BankAxept cards increased by 408.4m transactions, while the value of goods purchases made using BankAxept rose by around NOK 121bn. Gresvik and Haare (2009) showed that banks' income from payment services covered around 70% of the banks' costs for producing these services in 2007. Tables 21 and 22 on pages 53 and 54 provide an overview of fees for various payment services for retail and business customers.

1.5 Security

Cash

Counterfeiting is a problem for central banks in many countries. In Norway, the number of counterfeit notes remains low (see Chart 1.9). In 2011, 530 counterfeit notes were registered, compared with 571 in 2010. This is approximately 4 counterfeit notes per million notes in circulation, while the corresponding figure for euro area countries is 42.[6] According to information from Kripos

6 For euro area countries, there were approximately 606 000 counterfeit notes and around 14 400m notes in circulation in 2011 (see ECB (2012)).

(National Criminal Investigation Service), the quality of counterfeits is generally poor and counterfeit notes should be readily identifiable.

Online banking and cards[7]

Finanstilsynet (2012) notes that in 2011, it received more reports than previously of undesirable events, including events related to online banking and payment cards, largely due to faults affecting several financial institutions simultaneously.

As from 1 December 2011, the magnetic stripe on debit cards is no longer used in BankAxept terminals. Instead, the terminals read a chip on the card. Use of the magnetic stripe has been discontinued to improve banks' and customers' protection against fraud. While all bank cards will continue to have a magnetic stripe, it will be unusable in BankAxept terminals in Norway.

Norwegian cardholders can use chip cards abroad where possible, though not all countries have begun to use chip cards. The magnetic stripe will therefore still be used in POS terminals without a chip reader.

On international cards, such as Visa or MasterCard, issued by foreign or Norwegian banks, the magnetic stripe can still be used in POS terminals in Norway as before.

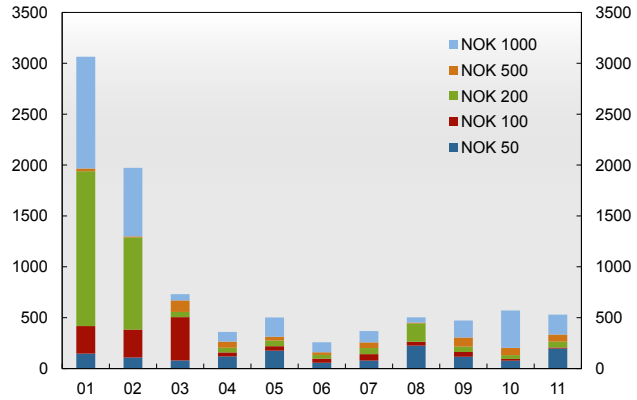
On the Wednesday before Easter 2011, problems arose with the use of payment cards. Customers noticed that debit and credit card transactions in POS terminals and ATM withdrawals were interrupted or were slow. The basic cause was hardware failure in a primary server for receiving card authorisations, which meant that the backup solution had to take over. The backup system proved not to have been upgraded with the same capacity as the primary system. The operational failure caused serious ripple effects, with the system reserving the same transaction more than once on customers' accounts and, in some cases, debiting the same transaction several times.

In 2011, FNO worked together with Finanstilsynet to obtain a deeper understanding of the operational risk picture and of which party has primary operational responsibility. In June, Finanstilsynet issued Circular 20/2011 concerning stricter requirements for banks in the light of the operating problems at Easter 2011. The circular emphasised the importance of banks taking clearer responsibility for the part of the transaction chain operated by external providers.

It was pointed out that banks must set specific requirements for providers and their work and obtain assurance, by performing active management and control over deliveries, that work is carried out according to contract, relevant guidelines and current regulations.

Card fraud is declining. According to FNO, banks recorded NOK 125.7m in losses connected with misuse of payment cards in 2011, down from NOK 200m in 2010. There was a particular decline in "skimming", i.e. card fraud where data from the magnetic stripe is copied. Important reasons for the decline in card fraud, according to FNO, are the increased use of chips, regional blocking, mobile notification and effective police work. Losses in 2011 are primarily due to card data stolen in Norway and used on counterfeit cards outside Norway. Many of these losses are also due to lost or stolen cards that are misused with PIN codes in Norway.

Chart 1.9 Number of seized counterfeit notes.
2001 – 2011



Source: Kripos (National Criminal Investigation Service)

7 This section is based on data and assessments from Finanstilsynet (2012).

"Phishing", i.e. attempts to gain unlawful access to card information, continues to be a problem, with procedures and technologies becoming increasingly advanced. Finanstilsynet expects that identity theft will grow and already considers it to be a serious problem.

The number of Trojan attacks on Norwegian online banks rose in 2011. In February 2011, the Internet addresses of most Norwegian online banks were found in malware intended to infect Norwegian bank customers' computers. Despite this, losses were minimal. Total losses connected with use of online banking services amounted to NOK 2.7m in the second half of 2011, while losses in the corresponding period in 2010 were NOK 2.4m. Measures adopted by banks have been effective and have stopped the attacks.

However, it is a problem that Trojan attacks are becoming increasingly automated. Thus, there have been examples of transactions generated with limited monitoring by the swindler (see Finanstilsynet (2012)).

1.6 New payment services

The payments market changes as new payment services develop.

New technologies affect payment service systems. The way consumers shop is changing, including an increasing number of purchases made online. This may also affect payment services. New market entrants are seeking to position themselves to take their share of the value added in payment services. In particular, there is strong competition for low-value payments.

Some of the developments in payment solutions are now taking place outside the traditional banking sector. Internet portals and other online enterprises have emerged as potential marketplaces and payment service providers. They can exploit network effects because they have a large number of users who want to do business together. Telecommunications companies are also offering new services. This poses challenges to the banking sector by increasing competition in the payment services market.

In the period ahead, regulations, standards and new technology will affect the market, current participants and new entrants. New technologies lower barriers to entry, while allowing new market participants like PayPal, Google and Apple to gain access to an increasingly competitive market. Even so, transforming technological creativity into a commercial breakthrough in the mass market may take time.

The best known payment service provider internationally is PayPal, which was established to facilitate money transfers for online purchases. When a payer uses PayPal, the payer's credit card or PayPal account is debited, with the amount credited to the payee in an internal PayPal account. The advantages for customers of using PayPal are rapid transfer of payment and avoiding having to disclose their bank account or credit card numbers.

Telecommunications companies are restricted as to the services they can provide and will likely rely on partnerships with financial institutions to be able to offer retail payment services. Many of the services offered via mobile subscriptions in Norway are regulated in the Financial Contracts Act. Transactions for the purchase of physical goods and non-digital services are to be considered retail payment services. It is the view of Finanstilsynet[8] that telecommunications operators can offer third-party services and products without being a licensed payment company or electronic money institution. The conditions are that the products are digital and that the involvement of the operator provides added value in the form of access, distribution or search services and that the product or service can be used only in digital devices such as a mobile phone or computer.

For consumers, new entrants' security arrangements are important. Consumers must be able to trust that the payment service provider does not misuse sensitive information and that their money is protected in the event of insolvency (cf. the deposit guarantee scheme for Norwegian banks).

8 Proposition 139 L (2010-2011): Amendments to the Payment Systems Act and Financial Institutions Act, etc. (implementation of EEA rules corresponding to Directive 2009/44/EC and Directive 2009/110/EF).

Mobile phones are an example of where new technologies make new payment solutions possible. Mobile phones are used in many ways:

- Mobile phones are used for communication with banks, for obtaining account balance information and for making payments from accounts. Banks have created solutions where telecommunications operators act to varying degrees as facilitators in carrying out "value transport".

- Mobile phones can also be used for making payments where the mobile subscription is used to pay for services other than telephone services, for example by sending a text message (SMS). The service is paid via the telephone bill. This kind of use of mobile phones has a number of common features with charge cards. In Norway, users can charge up to NOK 300 per SMS payment message.

- Some banks in Norway are also developing contactless payment solutions via mobile phones and payment cards using what is called near-field communication (NFC).

Contactless payment does not require a payment card with a magnetic stripe or chip. Instead, wireless technologies are used for communication between the POS terminal and payment card or mobile phone. Payment takes place when the card/mobile phone is held close to the terminal. Within a given per-transaction payment limit, no PIN code or signature is required.

So far, contactless payments appear to be most widely used in countries where debit card use is relatively limited or where card payments take longer than they normally do in Norway. Contactless payments are primarily intended for use in places where a large number of customers perform low-value transactions, especially fast-food chains, grocery stores and public transport. The benefit of contactless payment is speedier payment transactions. This reduces queues.

Few mobile phones support NFC technology at present, largely because very few merchants offer this form of payment. Conversely, it could be argued that the low number of NFC-enabled mobile phones is due to a shortage of merchant locations with the appropriate technology. Establishing a new infrastructure takes time.

Three banks are testing contactless payment in Norway using payment cards or mobile phones: DNB (Tap2Pay), Sparebank 1 SMN (Blunk) and Hol Sparebank in collaboration with Terra-Gruppen. These solutions are primarily intended to be an alternative to cash payment.[9]

The potential for payment services via mobile phone is considerable, since mobile phone use is high in Norway. So far, the contactless payment projects have been partnership projects involving a relatively large number of businesses. Questions that have been raised are how to make a profit from this type of payment and how fees should be distributed. The kinds of payments that can be made with a mobile phone in Norway are still limited and primarily consist of payment via mobile banking apps and various SMS solutions.

The increase in new entrants into the payment services market will improve competition in this area and encourage the development of new, innovative solutions. The development of new payment services will give consumers more instruments to choose from, allowing them to use the one that is most convenient. At the same time, the system can become more complex when payment services are offered via several channels. A clear division of responsibility among the participants involved is essential for confidence in and the efficiency of new retail payment services. For example, setting up agreements between bank and customer is challenging when different suppliers are responsible for providing different services to the same mobile phone.

To be successful, new methods of payment must offer users faster payment or functionalities that current pay-

9 These solutions are discussed in Langbraaten (2012).

ment services lack. They must also be easy to understand and use, with a high level of security.

1.7 Single Euro Payments Area (SEPA)

Under the EEA Agreement, Norway is obliged to implement new common European legislation for payment services. This legislation has affected the payment solutions developed in the Single Euro Payments Area (SEPA) project. It is therefore likely that these payment solutions will also affect the Norwegian payment system in the future.

SEPA instruments are intended to be used for payments in EUR, within a country or across national borders. The introduction of SEPA instruments started at the beginning of 2008 with the launch of the SEPA Credit Transfer Scheme, followed by the SEPA Direct Debit Scheme in November 2009. For SEPA cards, certain technical specifications apply. These will enable European cardholders and merchants to make payments at merchant terminals in other countries and withdraw cash throughout SEPA in the same way as in their home country.

In most countries, households, businesses and public entities have been slow to migrate from national solutions to the new instruments. An exception to this is SEPA cards based on EMV technology[10]. Towards end-2011, 90% of all cards in the EU had this technology, and around 95% of merchant terminals and ATMs have been adapted to accept EMV cards.

The use of SEPA Credit Transfer services varies widely. In Luxembourg, approximately 90% of all ordinary credit transfers were conducted using this instrument in 2011. The percentage of credit transfers of this kind is also relatively high in countries such as Cyprus, Slovenia, Finland, Belgium and Spain.

On the other hand, use of SEPA's Direct Debit (SDD) Scheme is very limited. At end-2011, SDD transactions accounted for only 0.5% of the total number of direct debit transactions.

Owing to the slow migration to SEPA instruments, it has long been argued that an end-date for participant state adoption of the new instruments was necessary. On 20 December 2011, negotiators representing the European Parliament and the European Council agreed on the text of the forthcoming SEPA Regulation, which sets technical standards for credit transfers and direct debits. A deadline of 1 February 2014 was set for the euro area to comply with these rules. The Regulation also sets a number of other deadlines for migration to SEPA instruments. The SEPA Regulation was formally adopted by the European Parliament on 14 February 2012.

10 EMV is a global standard for chip-enabled credit and debit cards, developed by Europay, MasterCard and VISA (hence the name, EMV) for communication between POS terminals and cards.

2. Interbank systems etc.

All transfers between banks take place in interbank systems, which are systems for clearing, settling or transferring money between banks. Interbank systems are the core of the financial infrastructure (see box on page 19).

It is important for financial stability that interbank systems function as intended at all times. Losses arising from an interbank system failure can be greater for society than for system participants. If the system is designed and operated solely to serve the interests of system owners, insufficient emphasis may be placed on providing secure solutions. In most advanced economies, this problem is solved by charging central banks with the responsibility for overseeing interbank systems. Pursuant to the Payment Systems Act and the Norges Bank Act, Norges Bank is responsible for supervising important interbank systems and for overseeing the payment system as a whole.

In 2011, a number of changes were made relating to interbank systems. Nevertheless, operational stability was not affected. The changes included the following:

- a new liquidity management system at Norges Bank,
- a new solution for settling payments for the government that reduces banks' liquidity needs and the risk associated with such settlements.

In addition, further changes will take place, such as instant payments and the introduction of caps on private settlement banks' exposure to banks they serve. Such caps reduce settlement banks' credit risk, but can result in minor delays in clearing if the caps are exceeded.

Internationally, work is underway to strengthen financial infrastructures, including the establishment of trade repositories and improved regulation of trading and settlement of derivatives and other securities. Moreover, new international standards have been drawn up for the design and operation of financial infrastructures.

On the basis of an overall assessment, Norwegian clearing and settlement systems compare well internationally. The systems generally meet international standards for best practice. In addition, system owners closely monitor international developments and are engaged in an ongoing effort to ensure that Norwegian systems will continue to be efficient and in line with international best practice.

2.1 Norges Bank's oversight and supervision of financial infrastructures

In Norway, important institutions and systems in the financial infrastructure are subject to *supervision* by Finanstilsynet (Financial Supervisory Authority of Norway) and Norges Bank, respectively. Finanstilsynet supervises institutions and retail payment systems, while Norges Bank supervises important interbank systems.[11] In addition, the Norges Bank Act gives the Bank responsibility for *overseeing* the financial infrastructure. Supervision and oversight of interbank systems are based on international recommendations. The principles from the Committee on Payment and Settlement Systems (CPSS) are especially important in this regard.

Norges Bank's area of responsibility

Norges Bank is the licensing and supervisory authority for interbank clearing and settlement systems. Licensed systems are subject to *supervision* by Norges Bank and must meet the requirements of the Payment Systems Act. These requirements are intended to ensure that interbank systems are designed to be robust and efficient and to promote financial stability. The Norwegian Interbank Clearing System (NICS) and DNB's settlement system are currently licensed by Norges Bank. Licensed systems must report turnover, exposures, disruptions, risk analyses, disaster recovery tests, etc. to Norges Bank.

The fundamental principle of the Payment Systems Act is industry responsibility for designing robust systems. As supervisory authority, Norges Bank therefore gives weight to market participants' responsibility for operating

11 This section is intended to explain the division of responsibility between Finanstilsynet and Norges Bank, and must not be interpreted as an overview of Finanstilsynet's supervisory work or the formal basis for this work.

interbank systems with sufficient emphasis on risk and efficiency. At the same time, all potentially important system modifications are required under the Act to be reported to Norges Bank. The modifications may be implemented, unless Norges Bank has decided otherwise within two months of receiving notification. Norges Bank may require that a system be altered if it has not been designed in compliance with the Act or with the terms of the licence issued by Norges Bank.

In addition to the Norges Bank Act, the CPSS principles also state that central banks should *oversee* interbank systems. The principles provide guidelines for managing legal, financial and operational risk and a framework for efficiency and sound management. While Norges Bank cannot direct institutions to implement changes to comply with the CPSS principles, it can disclose the results of its oversight in central bank publications. Interbank systems are subject to oversight regardless of whether they are licensed.

Working relationship between Norges Bank and Finanstilsynet

Responsibility for supervising the financial infrastructure is shared between Norges Bank and Finanstilsynet. Finanstilsynet supervises financial institutions, investment firms, clearing houses and central securities depositories, while Norges Bank supervises interbank systems (see Table 1).

Norges Bank's settlement system (NBO) is exempt from supervision by Norges Bank or Finanstilsynet, but the Bank ensures compliance with international CPSS recommendations as a part of its oversight. Whether legislation gives responsibility for the supervision of a system to Norges Bank or to Finanstilsynet in defined areas, close collaboration between the two institutions is essential:

- Pursuant to the Payment Systems Act, Norges Bank is responsible for supervising interbank systems, while Finanstilsynet shall monitor systems for payment services (systems used by retail and corporate customers). However, some solutions are used by both banks and customers and are therefore part of both the interbank system and the retail systems.

- Pursuant to the Norges Bank Act, Norges Bank shall promote an efficient payment system domestically as well as vis-à-vis other countries. Norges Bank oversees the efficiency of the payment system as a whole, while Finanstilsynet monitors the retail payment systems.

- Both Norges Bank and Finanstilsynet are responsible for supervising interbank systems' ICT operations. Norges Bank's responsibility ensues from the Payment Systems Act and Finanstilsynet's from the Financial Supervision Act and the ICT Regulation.

Table 1: Financial infrastructures subject to supervision or oversight

System	Financial instrument	Operator	Supervision/ oversight	Administrative body (or governing body)
Norwegian securities settlement system (VPO)	Securities	Norwegian central securities depository (VPS)	Supervision and oversight	Supervision of VPS: Finanstilsynet Oversight of VPO: Norges Bank
Oslo Clearing settlement system (OCO)	Derivatives/ equities	Oslo Clearing ASA (OC)	Supervision and oversight	Supervision of OC: Finanstilsynet Oversight of OCO: Norges Bank
Norwegian Interbank Clearing System (NICS)	Payments	NICS Operations Office	Supervision	Norges Bank
DNB Bank ASA settlement system	Payments	DNB Bank ASA	Supervision	Norges Bank
Norges Bank's settlement system (NBO)	Payments	Norges Bank	Oversight	Norges Bank
Sparebank 1 SMN settlement system	Payments	Sparebank 1 SMN	Oversight[1]	Norges Bank

[1] Sparebank 1 SMN is exempt from the licensing requirement for interbank systems as it has been considered to be less important for financial stability in Norway. The Sparebank 1 SMN settlement system is therefore not subject to supervision by Norges Bank.

Interbank systems in Norway

An interbank system is based on common rules for clearing, settlement and payment transfer between credit institutions. Norges Bank is the ultimate settlement bank in Norway (see Chart 1). Norges Bank receives clearings from NICS and the Norwegian central securities depository (VPS) and payments sent one by one by Norwegian banks via NICS and from the Continuous Linked Settlement (CLS) system.

NICS relays payments for gross or net settlement in Norges Bank. Small-value payments, such as card and giro payments, are netted, leaving each bank with one net credit or debit position vis-à-vis the other participant banks. The clearings are conducted by NICS. The positions calculated by NICS are sent to Norges Bank's settlement system (NBO) for settlement. In NBO, banks' accounts are credited or debited to settle the positions. This is called net settlement. For gross settlement, NICS sends all large payments (more than NOK 25m) from first-tier banks and any specially marked transactions. These transactions are settled at Norges Bank one by one.

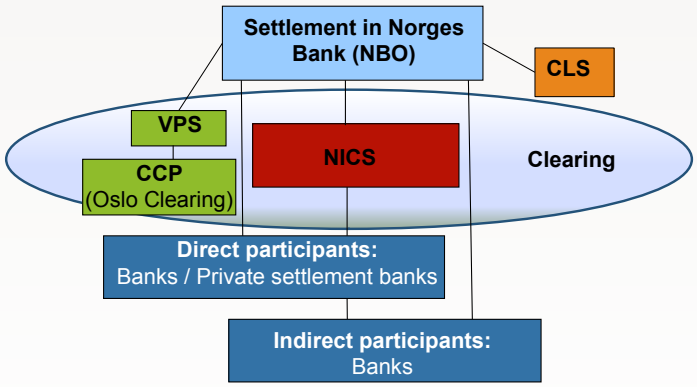
Most large banks and the private settlement banks are directly involved in net settlement at Norges Bank (first-tier banks). For those banks (second-tier) whose positions are settled through a private settlement bank, the settlement bank takes over these banks' positions and settles on their behalf in NBO. Banks using a private settlement bank in the net settlement can also choose to send gross transactions directly to NBO.

Banks can cover their debit positions in the settlement by drawing down deposits or raising intraday loans (D-loans) against collateral in Norges Bank. Banks participating through a private settlement bank can draw down their credit lines in the settlement bank.

Payments for trades in equities, equity capital instruments, notes and bonds are settled in the securities settlement system (VPO). For settlement of trades in equities and equity capital instruments, these trades are first reported to Oslo Clearing, currently the only central counterparty for trading in equity capital instruments at Oslo Børs. Oslo Clearing submits cleared cash and security positions to the Norwegian central securities depository (VPS). Each trade in short-term paper and bonds is sent directly to VPS by the investment firm. VPS then calculates a securities position and a cash position (i.e. the cash or securities each participant owes or is owed). Securities are then settled in VPS, while the cash positions are sent to NBO for settlement. The two systems jointly secure Delivery versus Payment (DvP).

Banks' cash positions from derivatives trading through Oslo Clearing are settled at Norges Bank or a private settlement bank. The central counterparty clears the cash positions of the parties and the participating banks and sends the result to Norges Bank or the private settlement bank. The central counterparty then concludes the trade with each of the two parties.

Chart 1 Interbank systems in Norway[1]



1) The chart has been simplified for reasons of clarity. CCP = Central counterparty

Source: Norges Bank

There are three central counterparties to derivatives trades in Norway: Oslo Clearing ASA (equity capital instruments), Nasdaq OMX Oslo NUF (energy derivatives) and NOS Clearing ASA (freight derivatives, seafood derivatives, etc). Imarex ASA has entered into an agreement to sell NOS Clearing ASA to Nasdaq OMX. The purchase will probably be completed in summer 2012, subject to the approval of the authorities. Cash positions from Oslo Clearing are settled in Norges Bank, while positions from the other two counterparties are settled in private banks.

Foreign exchange trades in NOK are largely settled in CLS Settlement. Each foreign exchange trade is settled separately in the banks' accounts in CLS. CLS has prior to the settlement calculated the net liquidity requirement of each participant in all the currencies. Payments to and from CLS in NOK are made directly in NBO. The settlement participant ensures that the net amount notified is sent in, either directly or via a correspondent bank.

Norges Bank and Finanstilsynet have deemed it appropriate to clarify these tasks by issuing a joint memorandum concerning cooperation and the division of responsibilities. Such a document has several purposes: it clarifies the division of responsibility, establishes clear procedures for cooperation and clarifies what information is to be exchanged. The document has been published on the two institutions' websites.[12]

2.1.1 Work on interbank systems

Norges Bank had two supervisory meetings with each system owner in 2011. The meeting included themes such as operational disruptions, drills, risk analyses and implemented and planned changes. Norges Bank sees to it that relevant parts of the systems are tested, verifies that disruptions are dealt with appropriately and ensures that any system modifications comply with the Payment Systems Act and requirements set by Norges Bank pursuant to the Act.

The most important system change for NICS in 2011 was the modification of the solution for the government's consolidated account. The new solution reduces the government's credit risk and banks' liquidity needs associated with government payments (see box on page 21). Norges Bank takes a positive view of this initiative and approved its implementation in NICS in July 2011. In addition, the banking industry decided in 2011 to impose caps for private settlement banks (see box on page 22). It is Norges Bank's view that caps will reduce risk in the payment system and the Bank approved the rules for the solution in November 2011.

DNB did not make any major changes to its settlement system in 2011.

Norges Bank oversees its own settlement system (NBO). The department in Norges Bank responsible for oversight is separate from the department responsible for system operations. It is important to Norges Bank for NBO to be subject to requirements at least as stringent as those applying to the private systems under Norges Bank's supervision.

Norges Bank also participates in central banks' oversight of the Continuous Linked Settlement (CLS) system for settling foreign exchange transactions. The Federal Reserve Bank of New York is lead overseer of this system.

2.1.2 Work on other financial infrastructures

In autumn 2010, Finanstilsynet and Norges Bank asked the Norwegian central securities depository (VPS) to assess its system against the recommendations from the European System of Central Banks (ESCB) and the Committee of European Securities Regulators (CESR). On 30 March 2012, VPS submitted its assessment to Finanstilsynet and Norges Bank for evaluation.

Oslo Clearing published its first self-assessment of its compliance with ESCB-CESR recommendations on 30 June 2011, as required by its licence from the Ministry of Finance.

12 See http://www.norges-bank.no/en/financial-stability/oversight/oversight-of-payment-systems/collaboration-finanstilsynet/. On this page, there is a link to a document clarifying the division of roles and cooperation in the oversight of securities settlement systems and central counterparties.

Improved solution for settlement of government payments

In the course of 2011 and the first half of 2012, Norges Bank and the banking industry began to use a new solution for receipts and disbursements via the government's sight deposit account at Norges Bank. The Norwegian Interbank Clearing System (NICS) and intermediary banks have adopted changes to allow for direct settlement of transactions between the government and any bank rather than settlement through the six intermediary banks performing account management services for the government. The intermediary banks are thus no longer obliged to hold liquidity to cover government disbursements, and the government's credit risk exposure to these banks is reduced as deposits in intermediary banks through the day will be considerably lower. Intermediary banks' responsibilities vis-à-vis the government are otherwise un-changed: they continue to manage the accounts of all government agencies and receive account data after settlement in NBO has been completed, for example.

In order to reduce operational risk while the change was being implemented, intermediary banks started to use the new solution at different times between November 2011 and April 2012. No operational problems related to the new solution have been experienced by Norges Bank or the banks.

Principles for the management of the government consolidated account system

The government consolidated account system was established and is currently managed based on three principles:

- All liquidity belonging to the government should be transferred to the government's consolidated account on a daily basis. Funds should be transferred to and from the government's consolidated account at Norges Bank by the shortest and simplest payment route.

- Intermediary banks are not permitted to have float income[1] in connection with payments to or from government accounts. This applies to float income both as a result of the payer's processing time (direct float) and as a result of the payee's non-receipt of liquidity when due (indirect float).

- Government deposits are held in an account at Norges Bank, and Norges Bank receives deposits from and disburses payments to banks on behalf of the government.

Previous and current solution

Under the previous solution, intermediary banks settled payments on behalf of the government in net settlements, which left these banks with a position against the government. If the government had a claim against an intermediary bank after a net settlement, the amount was transferred to the government's consolidated account at Norges Bank after the net settlement had taken place. If the intermediary bank had a claim against the government, the amount was subsequently credited the intermediary bank's account at Norges Bank.

Thus, intermediary banks had to advance liquidity in the net settlement to cover disbursements from the government's account, such as pensions, in an amount equivalent to the size of the payments, except payments to the intermediary bank's own customers. Similarly, intermediary banks handled receipts from payers who were not customers of these banks, such as tax payments, on behalf of the government.

Under the new solution, the government settles directly with all the banks in net settlements. Incoming payments are thus received by the government from each bank in a net settlement without being channelled via intermediary banks' accounts. The government can still incur a loss if a bank becomes insolvent, but the exposure is limited to payments made by this bank's own customers. Similarly, all payments from the government are made directly to each bank in net settlements, relieving the intermediary banks of the responsibility for advancing funds to cover these payments. This solution is thereby an improvement for both the government and intermediary banks and, furthermore, reduces the risk of disruptions in the settlement of payments.

1 Float income for intermediary banks is generated when funds are transferred from one account to another and do not carry interest for either the payer or payee for a period.

Caps for private settlement banks

At end-2011, 117 banks participated in NICS clearings and settlements in Norges Bank's settlement system (NBO) through four private settlement banks. The private settlement banks settle the positions of the participant banks following each of the three daily net settlements in NBO. Participant banks' positions are included in the private settlement banks' positions without requiring those participants to furnish deposits or collateral as cover. The settlement banks also guarantee settlement for individual banks when net settlement in NBO has been completed. The settlement result is recorded in the participant bank's account in the settlement bank.

The commitment to conduct settlement for participant banks can involve considerable credit and liquidity risk for settlement banks, as Norges Bank has highlighted in previous annual reports on payments systems[1]. The banking industry decided in 2011 to introduce a system of caps in NICS, enabling private settlement banks to place a limit on their exposure to an individual participant bank. Exceeding the cap could lead to disruptions in operating schedules for clearing and settlement. The settlement banks must therefore take both their own risk exposure and payment system efficiency into consideration when setting cap levels. The system is scheduled to be put into operation in 2012.

Rules and follow-up

Caps will be set for 24 hours at a time. Caps can be increased by the settlement bank in the course of this period, but cannot be reduced. The overall net position of the participant bank must be below the cap through the day.[2] If a bank's position exceeds the cap at the morning or afternoon clearing, the position will be omitted and moved to the next clearing. For the afternoon and final clearings, time limits to cover the position are set at 15 and 30 minutes respectively. The settlement bank must decide within this time limit whether to set a higher cap for the participant bank to enable it to be included in the clearing. If the cap is not increased, the participant bank may be excluded from NICS. Exceeding the cap can have serious consequences for both the bank and its customers. However, the cap system ensures equal treatment in that no bank will be able to settle transactions vis-à-vis a bank that has exceeded its cap.

Effective procedures must also be in place in settlement and participant banks in the event a bank exceeds the cap. It is important for participant banks to keep account of their positions before each of the clearings. The settlement bank must be able to assess the situation quickly and decide whether or not to increase a bank's cap, while participant banks should have effective procedures for obtaining liquidity from sources other than the settlement bank. If one bank exceeds its cap, other participant banks may also exceed their cap as a result, even if they were below their cap at the original clearing. In these cases, the settlement bank has an obligation to complete settlement for these other banks.

Norges Bank holds a positive view of the introduction of the cap system because it will reduce the risk to which settlement banks are exposed in net settlement. However, Norges Bank also emphasises that these caps should not be exceeded so frequently as to cause extensive disruptions in payment settlements. The cap system should therefore be evaluated after a period.

1 See for example Norges Bank (2007).

2 Example: With a cap of NOK 50bn, a bank's position can be negative NOK 20m at the morning clearing, negative NOK 40m at the afternoon clearing and positive NOK 10m at the final clearing. The position at the afternoon clearing will, however, be delayed and settled in the final clearing.

On 16 April 2012, the Committee on Payment and Settlement Systems (CPSS) and the International Organization of Securities Commissions (IOSCO) published new international principles for financial market infrastructures, which include payment systems, securities settlement systems, central securities depositories, central counterparties and trade repositories (see box on page 24). In May 2012, Norges Bank informed the relevant market participants of the new principles. Norges Bank will apply the new principles in its oversight and supervision of financial market infrastructures.

2.2 Interbank systems in Norway

2.2.1 Norwegian Interbank Clearing System (NICS)

In Norway, nearly all payment transactions are sent to NICS before being relayed to Norges Bank for settlement in Norges Bank's settlement system (NBO) (see box on page 19). These transactions may either be submitted one by one to NBO for final settlement (NICS gross) or they may be cleared and settled together (NICS net).

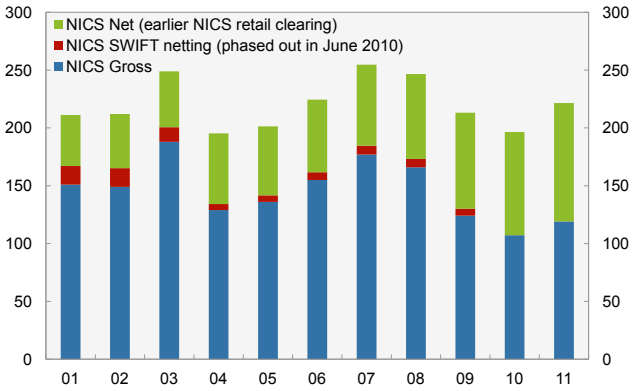
Average daily turnover in NICS was just over NOK 220bn in 2011. This is 10% higher than in 2010 (see Chart 2.1). At end-2011, 138 banks participated in the NICS daily clearings.

NICS operated stably in 2011. There were 13 operational disruptions during the year. This is somewhat more than in 2010, but the seriousness (number of error points) was lower than in previous years (see Chart 2.2).

Norges Bank has previously assessed NICS in accordance with international standards and concluded that risk in the system is at a satisfactory level (see Norges Bank (2007 and 2008)). The conclusion also stands in the light of changes to the system in recent years. Settlement in NBO of NICS clearings is not ensured if one of the participants does not have cover. Thus, NICS and NBO do not fully comply with Principle V.[13] Nevertheless, Norges Bank considers the solution banks have chosen for retail settlement to be as expedient as a solution based on an ensured completion of settlement (see Norges Bank (2007) for a discussion).

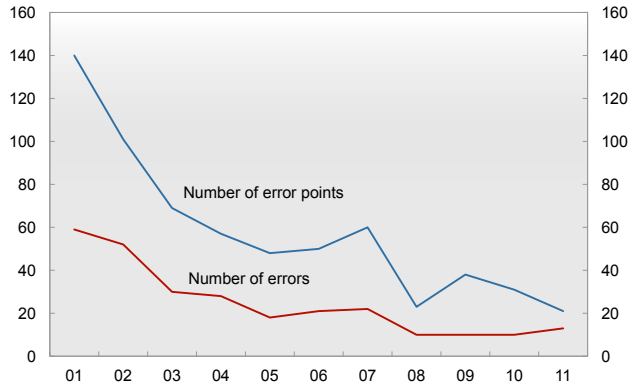
13 Principle V states that "[a] system in which multilateral netting takes place should, at a minimum, be capable of ensuring the timely completion of daily settlements in the event of an inability to settle by the participant with the largest single settlement obligation." (see CPSS (2001)).

Chart 2.1 Daily average turnover in NICS.
In billions of NOK. 2001 – 2011



Source: NICS Operations Office

Chart 2.2 Disruptions in NICS operations. Number of errors and error points.
2001 – 2011



Source: NICS Operations Office

Easier to change settlement bank

In the settlement of clearings from NICS, there is a distinction between the 22 banks that settle their positions directly in NBO (first-tier banks) and the other banks (second-tier banks), which settle via a private settlement bank. The possibility of being barred from settlement at

New international principles for financial market infrastructures

On 16 April 2012, the Committee on Payment and Settlement Systems (CPSS)[1] and the International Organization of Securities Commissions (IOSCO)[2] published Principles for financial market infrastructures (FMI) (see CPSS-IOSCO (2012)).

An FMI is defined as a multilateral system used for the purposes of recording, clearing or settling payments, securities, derivatives or other financial transactions. The participants in the system are from the financial sector. Important examples of FMIs are payment systems, securities settlement systems, central securities depositories, central counterparties and trade repositories.

The principles are recommendations as to the design and operation of an FMI. The new CPSS-IOSCO principles replace the Core principles for systemically important payment systems (CPSS 2001), the Recommendations for securities settlement systems and central securities depositories (CPSS-IOSCO 2001 and 2002) and the Recommendations for central counterparties (CPSS-IOSCO 2004).

The authorities in Norway and in most other countries will adopt the new principles in their oversight and supervision of financial infrastructures.

The new principles – background and process

The background for the new principles drawn up by the CPSS and IOSCO is partly experience from the use of the old standards and partly the financial turbulence of 2008 and 2009, which brought the management of certain types of risk into focus. The CPSS and IOSCO nevertheless emphasises the contribution of the old standards to the overall sound performance of FMIs during the turbulence.

The new principles were issued for public consultation, and the CPSS and IOSCO received 120 responses. In Norway, responses were submitted by VPS (the Norwegian central securities depository) and Norges Bank, among others. When the new principles were published, the CPSS and IOSCO issued two related documents for public consultation:

- a consultation paper on an assessment methodology for the new standards; and
- a consultation paper on a disclosure framework for the standards.

The CPSS and IOSCO aim to publish a final version of these two documents in the course of 2012.

What has changed?

The new principles have the same basic content as the old principles. The aim is also the same: to promote robust and efficient solutions for the infrastructure supporting financial markets and to reduce the risk of financial problems spreading from one financial market participant to another. The new principles are also designed to contribute to preventing the exclusion of a participant from the infrastructure without good reason. The principles for FMIs have nevertheless been changed to encompass three new elements:

First, a set of common principles has now been drawn up for all types of FMI, rather than separate principles for each type of FMI, to ensure greater harmonisation and consistency in national authorities' oversight and supervision of the different systems. However, as different types of FMI conduct different operations, not all the principles will apply to all types of FMI. For example, the principles on the management of financial risk are not relevant to trade repositories, which only register transactions.

Second, some of the principles have been made more detailed and explicit. This applies in particular to the principle on governance structure. The new principle includes the same elements as the old principle (clear division of responsibilities, reporting, etc.), but goes further, setting out detailed criteria for the composition of an FMI's board of directors with regard to professional

1 The Committee on Payment and Settlement Systems (CPSS) monitors financial market infrastructures and contributes to the development of more robust solutions. The CPSS includes representatives from central banks in G20 countries and the BIS hosts the secretariat for the committee.

2 The International Organization of Securities Commissions (IOSCO) works to establish financial market standards. Members are normally national financial supervisory authorities. IOSCO has members from more than 100 countries.

skills and the individual independence of board members. The new principles for the management of credit risk, liquidity risk and operational risk are also considerably more detailed.

Third, five new principles have been added:

- Principle on collateral: Some types of FMI are exposed to their own participants. According to the principle, such exposures should be collateralised by high-quality assets with low credit risk.
- Principle on general business risk, which primarily requires FMIs to hold adequate financial resources to continue operations even if losses arise.
- Principle on FMI links: FMIs are linked in a number of ways, and this principle contains requirements designed to prevent problems from spreading from one FMI to others.
- Principle on tiered participation arrangements (for example, a smaller bank participates in payment settlement via a larger bank): Under this principle, the risk related to these arrangements should be identified and managed appropriately.
- Principle on disclosure of market data by trade repositories: A statutory requirement will be imposed on advanced economies in 2012 for the registration of financial transactions in trade repositories to provide relevant data to the relevant authorities, market participants and the public. The principle sets out how trade repositories should operate.

short notice puts second-tier banks at a disadvantage. This can happen if a private settlement bank no longer wishes to allow them to participate in settlement or because the settlement bank itself is unable to perform its role as settlement bank. In order to reduce second-tier banks' settlement risk, Norges Bank emphasises that it should be simple to change settlement bank by allowing banks to rapidly shift from being a second-tier bank to a first-tier bank in NBO. In recent years, solutions have been developed to simplify such a shift:

- In 2010, NICS introduced real-time updates of individual banks' positions. This makes it easier for banks to calculate the position that needs to be moved to a new settlement bank in the event of a shift.
- Norges Bank has concluded agreements with second-tier banks which have accounts with Norges Bank to enable a rapid transition to the first tier in the NBO settlements.
- Norges Bank has agreements in place regarding contingency accounts to enable second-tier banks without an account in Norges Bank to participate in settlements in a crisis situation.
- Second-tier banks, i.e. banks participating in settlements in NBO through a private settlement bank, are advised to have a reserve settlement bank. NICS follows this up regularly via reports submitted by these banks.

To enable institutions to change settlement bank quickly, even in a crisis, solutions need to be tested regularly. Testing of the core systems, i.e. clearing in NICS and settlement in NBO, was carried out in November. More extensive tests are also important in order to give different participants experience in dealing with these situations.

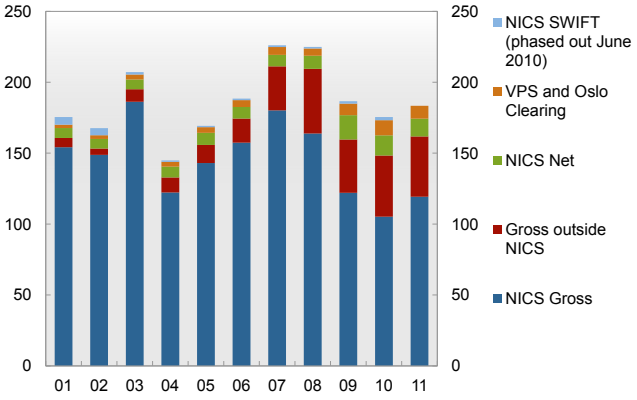
Improved efficiency in the payment system

Any bank in Norway may have an account with Norges Bank and thereby settle claims and liabilities vis-à-vis other banks in NBO. As mentioned, this may take place for each payment separately (gross settlement) or on the basis of clearing between several banks in NICS (net settlement). The advantage of gross settlement is rapid payment to the receiving participant (payee). Net settlement has the advan-

tage of substantially reducing banks' liquidity needs because transactions are netted. However, a disadvantage of net settlement is that the payee must wait for payment until settlement in Norges Bank has been completed. The length of this wait depends on the number of net settlements. Three daily clearings are sent from NICS for net settlement in NBO: the morning clearing is at 5.45 am, the afternoon clearing at 1.45 pm and the final clearing at 3.45 pm.

The introduction of a third clearing in 2010 has improved payment system efficiency. This clearing reduces liquidity risk, while payments are received faster by the payee owing to an increase in the number of settlements. The industry has also decided to introduce a fourth settlement in the course of the second half of 2012. Moreover, as from 2013, bank customers' payments can be carried out instantly if they are specially marked (see box on page 9).

Chart 2.3 Average daily turnover in NBO by settlement.
In billions of NOK. 2001 – 2011



Source: Norges Bank

Reduced risk in the central government's consolidated account system (SKK)

Six banks perform payment transactions for the government. On 3 November 2011, a new solution for transferring payments to and from the government went live. With the new solution, the government settles directly with all banks in net settlements (see box on page 21). The introduction of a new SKK solution was the only major system change in NICS in 2011.

2.2.2 Norges Bank's settlement system (NBO)

The NBO system was stable in 2011 and system availability was 100% throughout the year. System availability was 99.96% for NBO Online, which gives banks access to account information, and 99.91% for the system that registers banks' collateral for loans.

Average daily turnover in NBO in 2011 was approximately NOK 183bn (see Chart 2.3). This is somewhat higher than in 2010, when it was NOK 176bn. Higher gross settlement values accounted for a large share of the growth in turnover.

Daily turnover in NBO varies considerably. In 2011, as in the two previous years, turnover was highest on the maturity and issue dates of Treasury bills swapped for covered bonds under the swap arrangement (rollover). Rollover takes place on IMM dates.[14] Turnover in NBO was also highest in 2009 and 2010 on Treasury bill rollover dates.

Gross transactions account for most of the turnover in NBO (see Chart 2.3). Banks with accounts in NBO can send gross transactions either directly to NBO or via NICS. Banks generally opt to send their gross transactions to NICS, which subsequently relays them to NBO for direct settlement. Payments to and from the foreign exchange clearing system CLS account for most of the gross transactions sent directly to NBO. CLS is discussed in Section 2.3.5.

Execution of transactions in NBO requires that the payer bank has access to liquidity in its NBO account, either in the form of sight deposits or an unutilised borrowing

14 Customary maturity dates for standardised money market products.

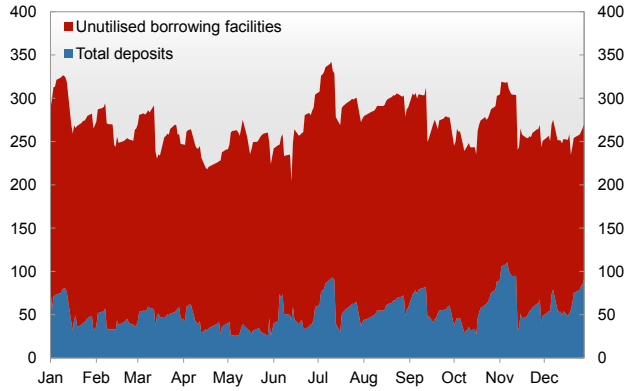
facility (see Chart 2.4). Norges Bank changed its system for managing bank liquidity as from 3 October 2011. In the new system, only a certain amount of banks' deposits – a quota – bears interest at the key policy rate. Deposits in excess of this quota will bear interest at a lower rate, the reserve rate (see Chart 2.5). Banks are divided into three groups, with banks in the same group receiving the same quota[15], except for settlement banks, which receive larger quotas. A new version of the settlement system was put into operation in October to allow for differentiated interest rates on banks' deposits.

In the new system, banks' total quota has been set at NOK 45bn.[16] Norges Bank seeks to maintain reserves in the banking system at an average NOK 35bn. The reserve rate has been set 100 basis points lower than the sight deposit rate. Norges Bank will normally review the total quota and allocation among banks twice a year. This was done most recently on 1 March 2012.

A daily average of 20 banks, primarily smaller banks, had deposits bearing the reserve rate in 2011 Q4. Total daily deposits at the reserve rate averaged somewhat over NOK 1bn.

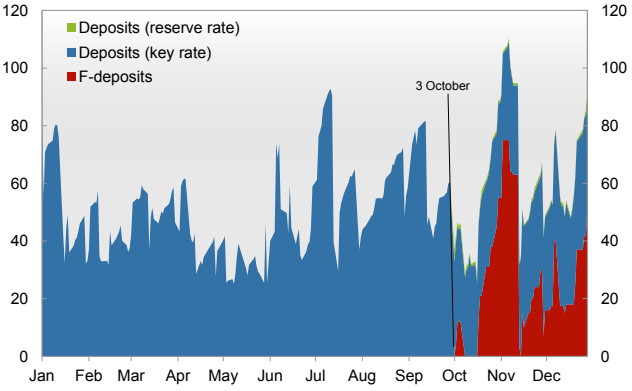
The eligibility rules for collateral for banks' loans from the central bank are intended to minimise risk for Norges Bank, while enabling banks to meet their borrowing needs. The collateral value of securities pledged for loans from Norges Bank was reduced from NOK 274bn at the beginning of 2011 to NOK 206bn at year-end.

Chart 2.4 Banks' total deposits and unutilised borrowing facilities at Norges Bank (end of day). In billions of NOK. 2011



Source: Norges Bank

Chart 2.5 Banks' total deposits at Norges Bank. Composition before and after the new liquidity management (quota-based) system 3 October. In billions of NOK. 2011



Source: Norges Bank

Norges Bank introduced new guidelines for pledging securities and fund units as collateral for loans with effect from 15 February 2012.[17] In addition to higher haircut rates, certain securities and pledges are no longer eligible as collateral for loans from Norges Bank under the new guidelines. Securities and fund units previously included in the quota for bank and financial securities are no longer eligible as collateral. This also applies to all securities and fund units approved under the temporary guidelines that entered into force as a response to the financial crisis in autumn 2008 but that do not meet the new eligibility requirements. This change affected over 300 securities and fund units with approximately 1 000 associated pledges. In isolation, banks' borrowing facilities were reduced by 15%, or just over NOK 30bn, as a result of the new guidelines. However, borrowing facilities quickly rebounded as new securities were pledged.

Norges Bank has assessed the NBO system in accordance with international principles and deemed the risk in the system to be at a satisfactorily low level.

15 Quotas are calculated on the basis of a bank's total assets.

16 See Norges Bank (2012a).

17 See Norges Bank (2012b).

Operational problems in a bank – consequences for the settlement of payments in Norges Bank

Large Norwegian banks settle claims and liabilities vis-à-vis other banks through Norges Bank's settlement system (NBO). Daily turnover in NBO averages more than NOK 180bn. Norges Bank requires banks to have sufficient liquidity before a transaction can be settled, either in the form of deposits or a borrowing facility (based on securities pledged in favour of Norges Bank).

The size of a bank's deposits through the day depends on the order of the bank's incoming and outgoing payments. A bank's deposits will be large through the day if the bank receives a number of large payments early in the day. Similarly, a bank's deposits will be low if the bank receives incoming payments late in the day.

An operational problem can prevent a bank from sending transactions to Norges Bank. The bank will receive incoming payments from NBO without being able to execute outgoing payments. This may lead to a considerable reduction in other banks' deposits in Norges Bank. How severe the effect of an operational problem will be depends on the size of the bank, the duration of the problem and when the problem occurs.

Direct and indirect effects

Berge and Christophersen (2011) have conducted a simulation[1] to assess the effects on NBO of an operational problem in a large Norwegian bank.[2] The article describes the effects of an operational problem lasting one hour, five hours and more than eleven hours (all day).

A distinction is made between *direct and indirect effects*. The direct effect is achieved by deleting all payments from a bank for a specified period. The indirect effect is measured by exploring to what extent this results in a liquidity shortage for other banks, preventing them from settling their own transactions. An unchanged pattern of behaviour is assumed, with banks continuing to send payments to the problem bank within the defined intervals.

An operational problem will lead to particularly severe effects for four of the banks (see Chart 1). An operational problem in one bank will normally lead to a limited reduction in total banking system liquidity. In some cases, however, the problem may lead to an accumulation of all available liquidity on the problem bank's account. If the other banks' deposits are sharply reduced (indirect effects), settlement of their transactions may be delayed (see Chart 2).

Why is the effect dependent on when the problem occurs?

The effect of an operational problem depends on the date and the time of day the problem occurs. The date of the occurrence is important for two reasons. First, there are large payments on certain dates. The most important example involves the payments related to rollovers in the swap arrangement on IMM dates[3]. On these dates, participants in the swap arrangement receive settlement for maturing Treasury bills and submit payment for new Treasury bill issues, with the result that the turnover in NBO on these dates is several times higher than normal.[4]

Second, structural liquidity varies through the year as the government has overnight deposits in Norges Bank and not in a private bank. Outgoing government payments thereby increase banks' deposits in Norges Bank, while incoming government payments have the oppo-

1 The simulations were carried out based on the close to 300 000 transactions sent by banks to NBO in 2010.

2 The simulation is used to explore the size of the impact if one of the 21 largest banks in Norway cannot execute outgoing payments.

3 Conventional maturity dates for standardised money market products.

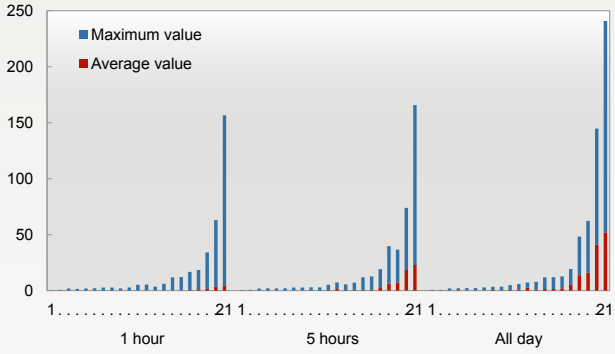
4 See monthly reports from Norges Bank Financial Stability, http://www.norges-bank.no/no/finansiell-stabilitet/norges-banks-oppgjorssystem/maned-srapporter-nbo-og-sil/ (Norwegian only).

site effect. Banks' available liquidity (deposits and borrowing facility) in NBO varied between NOK 200bn and NOK 300bn through 2011 (see Chart 2.4 on page 27). Chart 3 shows that delays resulting from an operational problem will be longer the lower available liquidity in NBO is.

The time of day is important because banks send payments at specific times. Payments related to clearings and banks' foreign exchange trades are primarily carried out in the morning. Other large payments are made at around 1 pm. Chart 4 shows average delays if a bank cannot send payments for shorter or longer periods through the day. Problems that arise early in the day cause the longest delays.

The simulations show that four of the 21 banks participating in NBO are particularly important in the sense that an operational problem in one of these four banks will have consequences for other banks. The consequences will depend on activity and available liquidity in the system at the time the operational problem occurs. Berge and Christophersen's analysis also shows that the consequences can be considerably reduced if other banks react quickly by postponing their outgoing payments to the problem bank.

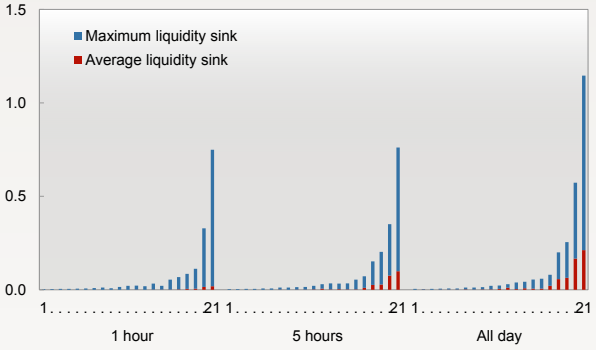
Chart 1 Value of payments directly affected by an operational problem[1]. In billions of NOK



1) Operational problem that lasts for 1 hour, 5 hours and all day. The 21 banks are sorted by value of payments not submitted.

Source: Norges Bank

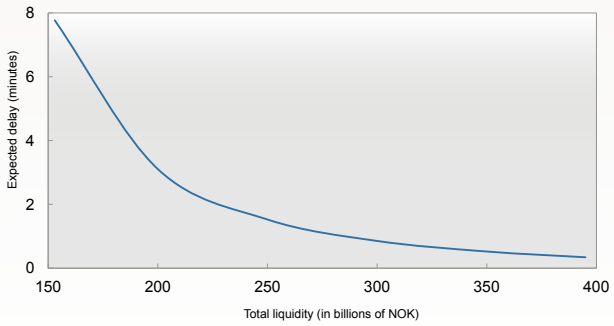
Chart 2 Relative liquidity sink. Operational problem that lasts for 1 hour, 5 hours and all day[1]



1) The 21 banks are sorted by liquidity sink relative to total liquidity at beginning of day.

Source: Norges Bank

Chart 3 Expected contagion (delay) for different levels of liquidity [1]. Average value of transactions. In minutes



1) The chart shows a significant reduction in expected delay as the liquidity in the system increases. Total liquidity below NOK 200 billion typically results in a delay of more than three minutes, while total liquidity above NOK 300 billion results in a delay of less than one minute.

Source: Norges Bank

Chart 4 Maximum expected contagion (delay) for other banks by time and duration of the operational problem. In minutes

Start \ End	06:29	07:29	08:29	09:29	10:29	11:29	12:29	13:29	14:29	15:29	16:29
05:29	03:15	10:25	17:16	24:24	31:20	35:06	36:45	37:07	37:14	37:54	39:04
06:29		00:06	01:41	06:51	13:17	17:56	17:56	17:58	18:47	23:30	31:06
07:29			00:31	02:50	05:20	07:44	12:06	17:55	18:47	23:30	31:06
08:29				01:14	03:44	06:30	12:06	17:55	18:05	18:15	26:02
09:29					03:36	05:52	12:06	17:55	18:05	18:15	26:02
10:29						00:58	03:10	06:08	11:48	18:13	26:02
11:29							02:53	06:08	11:48	18:13	26:02
12:29								02:29	08:33	15:13	23:14
13:29									00:19	01:52	06:11
14:29										01:52	06:11
15:29											00:00

Source: Norges Bank

Operation of the payment system during a financial crisis in a bank

In recent years, there has been increasing focus, nationally and internationally, on the handling of a distressed bank. The aim is to find solutions for resolving a bank without preventing the bank's execution of systemically important functions and without imposing extensive costs on the public sector. An example of a systemically important function is the role a bank has in the payment system.

Under current legislation, recapitalisation or placement under public administration are the only tools available for handling a distressed bank. Recapitalisation allows a bank to continue operating and providing payment services. A bank placed under public administration will not be able to take part in the payment system. There are several reasons for this. As soon as the bank is placed under public administration, Norges Bank will close the settlement account and the bank's borrowing facility will be discontinued. Furthermore, the bank will be barred from NICS and all transactions to and from the bank will be rejected.

Ensuring customers access to their deposits in a bank placed under public administration therefore poses a challenge. A solution to this challenge must encompass two components. The first is that the bank must obtain an overview of all guaranteed deposits, i.e. deposits that are not required to absorb losses when a bank is placed under public administration. Finanstilsynet (Financial Supervisory Authority of Norway) (2010) requires banks to be able to provide this information within five days.

The second component is that customers must have access to guaranteed deposits. There are three principal ways of achieving this:

- Customers have the option of transferring their guaranteed deposits to another bank or receiving a payment order for the guaranteed deposit amount.
- Banks' agreements in NICS and Norges Bank are changed to allow a bank under public administration to participate in the payment system.
- Another bank is established with access to the payment system, for example a bridge bank, to which the guaranteed deposits are transferred.[1]

Under current legislation and agreements, only the first alternative can be applied immediately. The second alternative requires NICS and Norges Bank, or a private settlement bank, to change their agreements to allow a bank under public administration to participate in the payment system.

Section 4-8 of the Guarantee Schemes Act provides some basis for applying the third alternative, but Norwegian legislation does not explicitly empower the authorities to split up and sell an institution; nor does it provide for the establishment of a bridge bank. Norges Bank has proposed that such provisions should be introduced into Norwegian legislation.[2] The bridge bank alternative requires a bank to be split up promptly, and this can only be done in an appropriate manner if both the authorities and the banks are adequately prepared.[3]

1 A bridge bank temporarily takes over the assets and liabilities of an insolvent bank and continues to provide the bank's key banking services.

2 See Norges Bank (2010).

3 See Søvik (2011) (Norwegian only).

2.2.3 DNB as private settlement bank

DNB is the largest private settlement bank in Norway. In winter 2012, the number of banks in the DNB settlement system was reduced from 102 to 100. As a settlement bank, DNB takes over participant banks' positions in NICS. Once clearings in NICS are settled at Norges Bank, participant banks' accounts with DNB are debited or credited.

DNB also offers settlement of single interbank transactions, in addition to settlement of transactions cleared in NICS.

To limit the risk associated with its role as settlement bank, DNB has established credit lines for participant banks. Credit lines totalled NOK 9.5bn at end-2011. Because no checks for cover had been put in place, DNB has had a risk related to the possibility that participant banks' positions will exceed their allotted credit lines. This risk will be eliminated when settlement caps are imposed on second-tier banks.

Risk has also been reduced for DNB's participant banks. Some of these banks previously cleared transactions with SDC, an IT service provider to the banking industry. SDC's solution credited some payments to payee accounts before the transaction was settled between the banks. This involved a credit risk for banks (see e.g. Norges Bank (2002)). This arrangement was discontinued in 2011. Participant banks now send all transactions to NICS for clearing.

The DNB settlement system was stable both in 2011 and in previous years, with few faults. The bank reported a single disruption in 2011, which was not particularly serious.

As part of its supervisory work, Norges Bank assessed the DNB system in accordance with international principles, and concluded at that time that the risk in the system was satisfactorily low (see Norges Bank (2007) and (2008)). The system has remained broadly unchanged in recent years and the conclusion still stands.

2.2.4 Small settlement systems

SpareBank 1 SMN is the settlement bank for 11 small and medium-sized banks. This system is exempt from the licensing requirement because it has been considered to be less important for financial stability in Norway. Norges Bank thus does not supervise this system, but annual oversight meetings are held on the basis of the annual report from SpareBank 1 SMN.

2.3 Settlement systems for securities and foreign exchange transactions

2.3.1 Securities trading and securities settlement in Norway

Lower market share for Oslo Børs

The EU Markets in Financial Instruments Directive (MiFID) has resulted in substantial changes in European equity markets. First, MiFID facilitated the emergence of new alternative trading venues, such as multilateral trading facilities (MTFs)[18], and second, permitted more trades to take place anonymously. This has resulted in a fragmentation of equity trading in Europe, with Oslo Børs and other exchanges in Europe losing substantial market share to MTFs, whose costs are highly competitive. Changes in trading patterns for Norwegian equities affect settlement volumes and the way transactions are relayed to VPS and Norges Bank for settlement (see Chart 2.6).

Oslo Børs noted a reduction in its market share for trading in Norwegian equities, from nearly 100% at the beginning of 2009 to approximately 68% so far in 2012. In particular, BATS Chi-X Europe and Stockholmsbørsen have taken market share from Oslo Børs.[19] Including trading in Norwegian equities outside of regulated trading venues[20], the market share of Oslo Børs so far in 2012 is approximately 50%.

18 An MTF is an organised trading venue operated by banks etc. (see Chapter 11 of the Securities Trading Act).

19 http://www.batstrading.co.uk/market_data/market_share/market/

20 Reported to Markit BOAT, which is a platform that a number of market participants and MTFs use to report their OTC trades. http://www.markit.com/en/products/data/boat/boat-boat-data.page

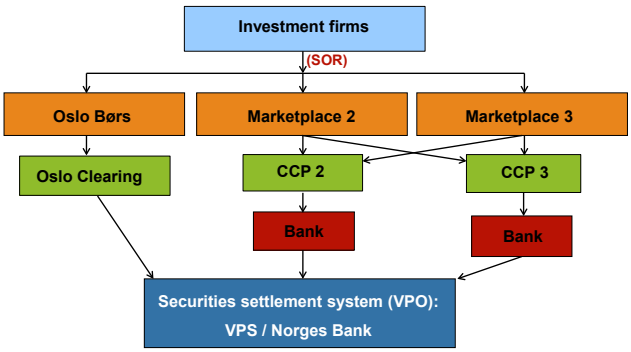
Changes in trading patterns: algorithmic trading

Another important development in recent years is the growing volume of computer-driven equity trading, where algorithms are used to generate orders automatically. The most aggressive type of algorithmic trading is known as "high frequency trading" (HFT). HFT seeks to profit from trading processes, has an extremely short time horizon and rarely takes overnight positions. The other type of algorithms are used by large (institutional) investors to minimise trading costs by splitting orders into smaller orders and sending them to different trading venues (e.g. "smart-order routers" (SORs)). Up until April 2010, trading orders on Oslo Børs had to comprise a certain number or "block" of shares. Now, orders can be placed for any number of shares, with one as the minimum. Oslo Børs is planning to introduce a faster trading system in 2012 Q4 that is better adapted to algorithmic trading.

Several studies suggest that HFT has narrowed bid/ask spreads, but that the volume that can be traded at the best bid and ask prices has declined. On the other hand, studies show that aggregate liquidity across trading venues has improved on account of fragmentation. For major investors, the combination of increased HFT activity and lower market depth at the best prices is a challenge. Consequently, there has been a trend whereby trades are increasingly executed anonymously in what are called "dark pools". These can be broker-owned networks outside of organised trading venues (e.g. Liquidnet) but also trading via anonymous orders on regulated venues/exchanges. In September 2011, Oslo Børs began to market this kind of functionality in the exchange's trading system, TradElect. According to Oslo Børs, this is offered to investors who wish to execute high-volume orders without having to split them up into smaller orders.

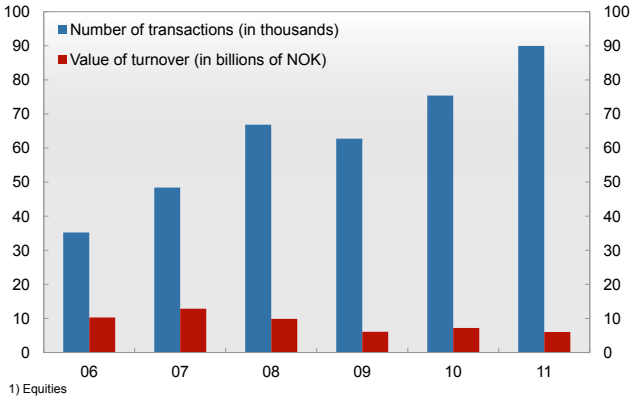
The dramatic increase in HFT activity is a source of concern, which may eventually lead to declining confidence in market venues. A draft directive (MiFID II), which imposes stricter requirements on HFTs and introduces reporting and disclosure requirements for "dark pools", has been drawn up with a view to enhancing transparency.

Chart 2.6 Equities – trade and settlement in NOK at different marketplaces[1]



1) The chart has been simplified for reasons of clarity
Source: Norges Bank

Chart 2.7 Number of transactions and value of turnover on Oslo Børs [1].
Daily average. 2006 – 2011



1) Equities
Source: Oslo Børs

Changes in trading patterns have increased the number of smaller equity trades on Oslo Børs, a development that continued in 2011 (see Chart 2.7). The average number of daily equity transactions executed on Oslo Børs rose from approximately 75 000 in 2010 to around 90 000 in 2011, while the daily average trading value was reduced from NOK 7bn to NOK 6bn. In April 2012, foreign investors accounted for 92% of equity trading (by value), while Norwegian investors accounted for the remaining 8%. Oslo Børs has 55 equity trading members, 33 of which at end-2011 were remote members. Since August 2010, all equity trades on Oslo Børs have been settled with the central counterparty Oslo Clearing (see Section 2.3.3).

Securities settlement

All payments for trades in equities, equity capital instruments, notes and bonds are settled in the securities settlement system (VPO) (see box on page 19). There are two daily net settlements: at around 6 am and at 12 noon. In 2011, the morning settlement accounted for approximately 81% of daily volume. The average daily amount settled in VPO in 2011 was NOK 4.5bn. Because netting takes place both at Oslo Clearing and in VPS, settlement totals in VPO are small relative to trading volume. At end-2011, 96.2% of transactions in VPO were settled on the agreed date.

In addition to equity trading on Oslo Børs, Norwegian equities are traded in NOK on a number of foreign trading venues that use various foreign central counterparties (CCPs) (see Section 2.3.3). These CCPs do not participate in VPO. Their NOK positions are therefore relayed via certain banks that are participants in VPO (see Chart 2.6).

These transactions are reported for settlement in VPO in the bank's name. This means that banks are obliged to furnish liquidity for transactions from foreign CCPs. In other countries, it is customary for the central securities depository to offer a form of gross settlement of securities trades combined with various forms of liquidity optimising/netting. VPS has no plans to introduce gross settlement, but is considering a proposal for an extra net settlement in the afternoon, or moving the last net settlement (which currently takes place at noon) to later in the day. Under current rules, a bank under administration may not participate in VPO or NBO. The rules are under evaluation (see Norges Bank (2011b)).

2.3.2. Status of the Target2-Securities (T2S) project

To promote a single securities market in Europe, the ECB/Eurosystem[21] has established the T2S project. T2S is intended to be a common IT solution that central securities depositories and central banks can use for settling securities trades in EUR and other European currencies.

21 The Eurosystem includes the European Central Bank (ECB) and the central banks of states where the euro is the national means of payment.

If VPS and Norges Bank participate in T2S, the Eurosystem will be in charge of the technical operation of Norwegian securities settlement.[22] Other services currently offered by VPS, e.g. issuer and investor services, will not in principle be affected.

The planned go-live of T2S has been postponed twice, first from June 2013 to September 2014 and then to June 2015. Central securities depositories are to migrate to the system in waves up until the turn of the year 2016/2017. In 2010 and 2011, the ECB/Eurosystem negotiated with 30 central securities depositories and a number of central banks outside the euro area on participation. Both VPS and Norges Bank participated in the negotiations.

On 17 November 2011, the ECB approved the central securities depositories' T2S Framework Agreement.[23] The ECB invited all central securities depositories that had participated in negotiations to sign in spring 2012. On 23 February 2012, the ECB approved the Currency Participation Agreement with non-euro area central banks, asking them to sign in the first half of 2012.

In autumn 2011, in a dialogue with Finance Norway (FNO), the Norwegian Securities Dealers Association, the Norwegian Fund and Asset Management Association, Oslo Clearing and Oslo Børs, VPS assessed whether securities denominated in NOK should be settled in T2S. The outcome of this process was that VPS takes a positive view on participation in T2S.[24] Nevertheless, after an overall assessment, and in line with recommendations from participants in the Norwegian securities settlement system, VPS decided to work towards joining T2S at a later date, most likely 2018/2019. VPS will continue to evaluate how to make best use of the T2S platform. This decision means that, for the time being, VPS will not sign an agreement with the ECB.

Norges Bank's participation hinges on demand from market participants, and the terms of the agreement must

22 See Husevåg (2010).

23 http://www.ecb.int/paym/t2s/about/spotlight/html/index.en.html

24 See VPS (2012).

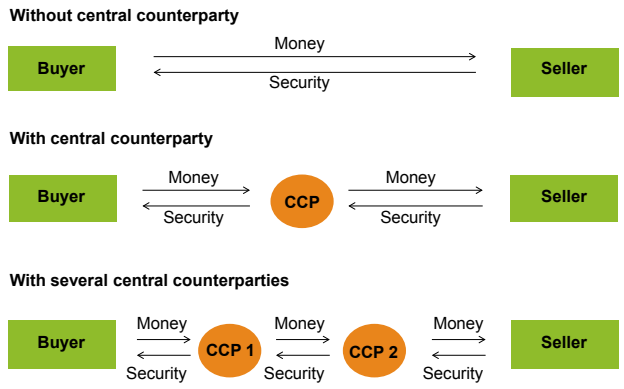
adequately protect Norges Bank's interests. The assessment must therefore take into account financial stability and the conduct of monetary policy and whether the Bank's own risk is adequately provided for in the agreement. Given the views of Norwegian market participants, Norges Bank currently finds no basis for considering arrangements for settling trades in NOK in T2S. Norges Bank notified the ECB of this in a letter dated 10 May 2012.

Other European central banks outside the euro area have also considered this matter. The Swiss National Bank and the Bank of England have decided not to participate in T2S. Sveriges Riksbank and Seðlabanki Íslands have notified the ECB that they will not sign at this time, but will consider participating at a later date. Danmarks Nationalbank will sign on the condition that they receive a deferral until 2018 for DKK.

In 2011, Norges Bank organised a T2S National User Group (NUG) together with VPS. The group has approximately 25 members, from VPS, banks, investment firms and securities funds. Finanstilsynet has observer status. Minutes of meetings are published at www.ecb.int, as for other countries. The NUG had four meetings in 2011 to prepare input from the Norwegian market to the T2S Advisory Group (AG) and to discuss other matters. The AG advises the ECB Governing Council on T2S matters and has approximately 80 members from all potential participant states. The three Norwegian members are from VPS, Norges Bank and DNB. As the T2S project currently stands, central securities depositories and central banks outside the euro area that do not sign the agreements in the first half of 2012 may no longer participate in bodies where market participants can influence the project.

A group of supervisory bodies and central banks in countries considering participation in T2S has been established for the purpose of cooperation on overseeing and supervising T2S. The group is headed by the ECB and ESMA and comprises 47 institutions. Both Norges Bank and Finanstilsynet are formally members, but no meetings were held in 2011.

Chart 2.8 Securities trading with central counterparty



Source: Norges Bank

2.3.3 Central counterparty for equity trades on Oslo Børs

A central counterparty (CCP) is an institution that interposes itself between counterparties to a trade, becoming the buyer to the seller and the seller to the buyer. The original contract between the two parties is replaced with two new ones: one contract between the buyer and the buyer's CCP and one between the seller and the seller's CCP. Buyers and sellers may use different CCPs (see Chart 2.8).

On 27 August 2010, Oslo Børs introduced mandatory use of CCPs in the settlement of all trades in equity capital instruments (equities etc.). Oslo Clearing is currently the only CCP on the exchange, but under the terms of the licence from the Ministry of Finance, Oslo Børs must offer at least two CCPs by end-2012.

All equity trades on Oslo Børs are now reported to Oslo Clearing, which computes each investment firm's net position in cash for each equity. These net positions are then sent to VPS for clearing and settlement in the securities settlement system (VPO). Oslo Clearing participates in VPO with its own account with Norges Bank. The number of transactions in VPO was 11.5m in 2011, a decline of 63% compared with 2010 and 73% compared

with 2009. There have been no technical problems of significance associated with the operation of Oslo Clearing.

The introduction of CCPs in equity trading venues requires all direct participants in a trade to be a member of a CCP (directly or indirectly). Buyers and sellers are not exposed to one another, only to their CCP. If a member of a CCP becomes insolvent, the CCP must fulfil the member's settlement obligations. Since all market participants are exposed to one or more CCPs, it is important for financial stability that these CCPs are solid and efficient.

Therefore, Oslo Clearing's licence from the Ministry of Finance requires it to publish an annual self-assessment of whether the institution is complying with international recommendations from ESCB-CESR.[25] These recommendations set out how CCPs are to operate efficiently with appropriate risk management arrangements. The recommendations also include collateral requirements. A CCP must be able to withstand a default by the participant to which it has the largest exposure in extreme but plausible market conditions. There are also recommendations for how CCPs should link to each other when settling contracts where the buyer and seller have different CCPs.

Oslo Clearing published its first self-assessment on 30 June 2011. Oslo Clearing holds the view that the company complies with all relevant recommendations for both equity and derivatives and publishes a background report on its website.[26]

Plans for more CCPs on Oslo Børs

Oslo Børs has signed a memorandum of understanding with London-based LCH.Clearnet on a partnership to offer clearing services. Once there are two or more CCPs on Oslo Børs, buyers and sellers will be free to choose different CCPs. CCPs will then have to link to each other, at the same time as they are competitors. Oslo Børs aims to offer an alternative CCP to Oslo Clearing in 2012 Q4, at the same time as Oslo Børs implements the London Stock Exchange's new Millennium Exchange trading platform.

25 See ESCB-CESR (2009).

26 www.osloclearing.no/osloclearing_nor/Om-Oslo-Clearing/Self-Assessment

Under current rules, foreign CCPs must apply to the Norwegian authorities for a licence to operate in Norway. Additionally, both Norwegian and home state authorities must assess the risk associated with links between the two CCPs. Once a foreign CCP becomes affiliated with Oslo Børs after the introduction of the new EU regulation (see discussion of EMIR in Section 2.3.4), the company is no longer required to apply to the Norwegian authorities for a licence. A licence issued by the home state will be valid throughout the EU/EEA.

Most members of Oslo Clearing are international banks that are also members of other CCPs in other countries. If these banks are able to settle trades on Oslo Børs via the same CCP(s) they use in other trading venues, their CCP(s) will be able to calculate a net margin that applies to trades on Oslo Børs and in other trading venues. This could make it less expensive for international market participants to settle trades on Oslo Børs. The largest venue for equity trading in Europe, BATS Chi-X Europe, has been affiliated with four CCPs as from 6 January 2012. Nasdaq OMX Nordic (operator of exchanges in the Nordic countries excluding Norway) currently has one CCP for equities, the Dutch company EMCF. The plan was to be affiliated with two additional CCPs as from April 2012, but this has been postponed pending approval by the authorities.[27]

2.3.4 New EEA regulations

Regulatory framework for central counterparties (CCPs)

On 29 March 2012, the European Parliament approved a new regulation, the European Market Infrastructure Regulation (EMIR)[28]. Among other changes, the regulation requires the use of a CCP for OTC trades in a number of unlisted derivatives and requires these trades to be reported. The European Council is expected to endorse the Parliament's decision. The regulation gives extensive responsibilities to the European Securities Market Authority

27 See news release of 26 March 2012, https://newsclient.omxgroup.com/cdsPublic/viewDisclosure.action?disclosureId=497492&lang=en

28 The official title is "Regulation on OTC derivatives, central counterparties and trade repositories".

(ESMA). ESMA will draw up a large body of binding technical standards under the regulation. ESMA will both define the derivative contracts that will be subject to the requirement of using a CCP (see box on page 38) and establish standards for supervising CCPs. Finanstilsynet is participating in ESMA's work in this area.

New rules for central securities depositories

In 2010 and 2011, the European Commission worked on a regulation for central securities depositories (CSDs). The Ministry of Finance and Finanstilsynet have participated in the working group appointed by the Commission to draw up the proposal for a new regulation. A proposal was circulated for comment with a response deadline of 1 March 2011. On the basis of the responses, the Commission drew up a new proposal, which was published on 7 March 2012.[29] ESMA will draw up appurtenant standards by 2014 for implementation in 2015.

Like the original draft, the proposal of 7 March allows a CSD licensed in one EU/EEA state to provide services throughout the EU/EEA, including services to securities issuers. With this proposal and the introduction of T2S, discussed above, VPS may in a few years' time face competition from one or more CSDs seeking to provide services in Norway.

2.3.5 The foreign exchange settlement system CLS

CLS Bank (CLS) is an international bank that specialises in the settlement of foreign exchange transactions. CLS started operations in 2002. The credit risk linked to the trades settled by CLS is eliminated because the system ensures that the two parts of the foreign exchange transaction are settled simultaneously.[30] CLS currently settles transactions in 17 currencies and accounts for more than 68% of global foreign exchange transactions in these currencies. CLS is also working to include additional currencies and has a list of 19 currencies that are viewed by CLS as relevant somewhat further ahead.

CLS Bank is located in New York and is supervised by the Federal Reserve Bank of New York, in collaboration with the central banks for the other currencies settled by CLS. In 2011, CLS published an assessment of its system, based on the CPSS principles.[31] CLS concludes that it does not fully observe the principle regarding governance and changed its assessment from "observes" in 2009, to "broadly observes" in 2011.

To address the shortcomings pointed out in the assessment, CLS has implemented a programme to strengthen and improve its governance structure. One important measure is the increase in the number of independent board members. The board has also appointed a committee to focus on strategy and regulatory issues. This will enhance understanding of the regulatory changes and adapt to financial market developments. On 16 April 2012, CLS announced that the CEO would be stepping down at the end of April and that the chairman of the board would be taking over as interim CEO.[32]

Market participants take part in settlement in CLS as settlement members or third parties. While settlement members manage their own pay-ins to and pay-outs from CLS, third party participants use a settlement partner for these transactions. At end-2011, there were 63 settlement members of CLS, two more than at end-2010. Since 2008, the number of third parties has risen from 4 154 to 15 468. All settlement members are banks, while a clear majority of third parties are investment funds. In Norway, there is one Norwegian settlement member (DNB) and three other banks that pay NOK to CLS through Norwegian branches/subsidiaries (Nordea Bank Norge, Danske Bank/Fokus Bank and Skandinaviska Enskilda Banken).

Turnover in CLS has increased substantially in recent years. In 2011, CLS settled on average a good 400 000 daily transactions, with a daily average volume traded equivalent to around NOK 27 000bn. Currencies traded the most are USD, involved in 45% of trades, and EUR at 20%. NOK accounts for about 1% of trades. Daily

29 http://ec.europa.eu/internal_market/financial-markets/docs/COM_2012_73_en.pdf

30 Often referred to as "payment versus payment" (PvP).

31 http://www.cls-group.com/About/Documents/CLS%20Bank%20-%20Core%20Principles%20Assessment.pdf

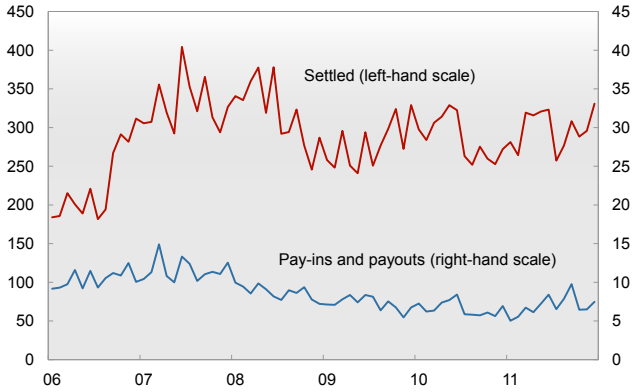
32 http://www.cls-group.com/Media/Pages/NewsArticle.aspx?id=95

average gross turnover in NOK in CLS was just over NOK 298bn in 2011. Chart 2.9 shows developments in settlements of NOK transactions in CLS.

Under the CLS system, banks' pay-ins to CLS are small relative to transaction volume. While turnover takes place on a gross basis in CLS Bank, payment obligations in each currency are netted. In addition, CLS offers a service enabling banks to reduce their payment obligations by swapping currencies. Banks set a limit for their obligation in each currency, and then CLS finds a counterparty willing to reduce the payment obligations in an in/out swap. In 2011, net liquidity in and out of NBO was between 2% and 3%[33] of traded volume (see Chart 2.9).

33 In 2011, daily pay-ins and pay-outs in NOK averaged NOK 7bn (blue line, right-hand scale), while daily traded volume averaged NOK 298bn (red line, left-hand scale).

Chart 2.9 Value of daily NOK settlements in CLS, and pay-ins and payouts in NOK. Monthly average. In billions of NOK. 2006 – 2011



Sources: CLS and Norges Bank

Measures to reduce risk associated with OTC derivatives

The financial crisis revealed shortcomings in the infrastructure of the over-the-counter (OTC) derivatives market. Market participants were not able to unwind or settle some kinds of derivative contracts, and the authorities had limited information on the size of the exposures between counterparties. This led to increased systemic risk and government rescue packages for important institutions in these markets.

The G20 leaders therefore agreed in 2009 on measures to mitigate risk and improve transparency in OTC derivatives markets. In the EEA, this has been followed up by an EU Commission proposal for a regulation on OTC derivatives. Further details related to the regulatory requirements will be drawn up by the European Securities and Markets Authority (ESMA). The requirements are scheduled to enter into force on 1 January 2013.

For Norwegian banks, the requirements will primarily have an impact on banks' use of interest rate and foreign currency derivatives. A large share of banks' lending is currently funded by foreign currency borrowing. Banks use foreign currency and interest rate derivatives to achieve the required maturity on the interest rate and to swap the loans raised for the funding currency they need. Norwegian banks' use of credit derivatives is limited.

The requirements in the new EU Commission regulation can be grouped into four categories:

- Eligible OTC derivatives should be cleared through a central counterparty (CCP). It has not yet been decided which derivatives should be considered eligible for CCP clearing, but an important criterion will be whether they are standardised (contracts sharing the same characteristics). When a CCP is used, each trade is split into two, with the CCP becoming the buyer to the original seller and the seller to the original buyer. With settlement through a CCP, the counterparties will no longer be exposed to each other, but only to a regulated and well capitalised CCP.

- Requirements will be drawn up for non-centrally cleared OTC derivatives. These may include requirements specifying the level of collateral participants must deposit for the exposure on both sides of the trade (margining), the type of collateral that is eligible, and procedures for managing risk associated with such derivatives.

- Common rules for CCPs will be established. The requirement for settlement through a CCP increases the importance of sound risk management and loss-absorbing capacity in these institutions. In drawing up common rules, ESMA gives weight to the CPSS-IOSCO recommendations, but notes that the CPSS-IOSCO recommendations are global and is considering stricter requirements for European CCPs on some points.

- Financial counterparties will be obliged to report all OTC derivatives to a trade repository. All or parts of the information will be made available to national authorities, the parties involved and the public. By making it easier to monitor counterparties' exposures, trade repositories will enhance financial stability.

Banks' capital requirements for OTC derivative exposures under the Basel III rules will depend on whether the derivatives are settled bilaterally or through a CCP. If the trade is settled though a CCP that meets the CPSS-IOSCO recommended standards, the risk weights assigned to the exposure will probably be far lower than otherwise. Banks will therefore have an incentive to settle trades through a sound CCP.

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General data

Table 1: General statistical data for Norway

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Population (as at 1 January, in millions)	4.51	4.53	4.56	4.58	4.61	4.65	4.69	4.75	4.81	4.87	4.93
GDP, market value (in billions of NOK)	1 537	1 532	1 592	1 753	1 959	2 181	2 306	2 560	2 357	2 523	2 711
Mainland GDP, market value (in billions of NOK)	1 180	1 225	1 273	1 366	1 465	1 603	1 757	1 863	1 876	1 985	2 088
Total household consumption (in billions of NOK)	641	670	710	757	798	853	911	958	979	1 038	1 074
1 USD in NOK (annual average)	8.99	7.97	7.08	6.74	6.45	6.42	5.86	5.64	6.28	6.05	5.61
1 EUR in NOK (annual average)	8.05	7.51	8.00	8.37	8.01	8.05	8.02	8.22	8.73	8.01	7.79

Means of payment in Norway

Table 2: Means of payment used by the public (at year-end, in millions of NOK)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Money supply (M2)	**818 858**	**882 915**	**904 217**	**972 013**	**1 085 330**	**1 233 749**	**1 440 205**	**1 494 802**	**1 529 940**	**1 609 936**	**1 705 282**
Narrow money supply (M1)	**384 630**	**399 712**	**427 689**	**472 058**	**552 246**	**679 503**	**760 448**	**736 491**	**744 260**	**788 613**	**825 188**
Banknotes and coins	42 038	40 283	41 685	43 340	46 530	48 247	49 543	49 128	48 399	48 725	48 981
Deposits in current accounts	342 592	359 429	386 004	428 718	505 716	631 256	710 905	687 363	695 861	739 888	776 207
Other deposits	**370 171**	**409 704**	**407 457**	**423 184**	**435 483**	**473 108**	**559 351**	**657 162**	**693 888**	**731 271**	**780 195**
Certificates of deposit + units in money market funds	**64 057**	**73 499**	**69 072**	**76 771**	**97 601**	**81 138**	**120 406**	**101 149**	**91 792**	**90 052**	**99 899**

Tabell 3: Bank liquidity (in millions of NOK)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sight deposits, annual average	11 804	15 647	24 690	21 337	28 666	24 536	24 867	41 713	75 111	46 832	46 498
Banks' deposits at the central bank at the reserve rate, average as from 3 October 2011	:	:	:	:	:	:	:	:	:	:	1 039
Deposits at the central bank (F-deposits), average as from 3 October 2011	:	:	:	:	:	:	:	:	:	:	26 344
Lending (F-loans + D-loans), annual average	13 356	538	2 978	18 788	14 694	34 411	46 670	67 515	66 242	72 759	32 351

Table 4: Banknotes and coins. Annual average (in millions of NOK)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total	**42 947**	**41 767**	**41 562**	**43 728**	**45 887**	**49 218**	**50 439**	**50 413**	**50 356**	**50 450**	**50 315**
Total banknotes	**39 271**	**37 811**	**37 429**	**39 429**	**41 382**	**44 523**	**45 858**	**45 838**	**45 704**	**45 676**	**45 463**
1000-krone	24 713	22 599	22 167	23 555	24 649	25 818	26 179	25 371	24 382	23 134	21 678
500-krone	6 921	7 626	7 732	8 278	9 060	10 374	11 213	11 882	12 722	13 623	14 542
200-krone	4 446	4 573	4 674	4 792	4 819	5 296	5 381	5 522	5 580	5 846	6 103
100-krone	2 464	2 270	2 091	2 012	2 021	2 119	2 121	2 083	2 029	2 062	2 099
50-krone	727	744	765	793	833	916	964	980	993	1 012	1 041
Total coins	**3 676**	**3 955**	**4 133**	**4 299**	**4 506**	**4 695**	**4 581**	**4 575**	**4 652**	**4 774**	**4 852**
20-krone	1 124	1 387	1 561	1 667	1 778	1 849	1 665	1 541	1 556	1 599	1 629
10-krone	1 111	1 085	1 051	1 049	1 076	1 145	1 214	1 259	1 276	1 307	1 323
5-krone	497	505	515	538	563	598	630	654	664	674	679
1-krone	641	666	686	718	753	799	845	884	912	941	962
0.5 krone	174	182	191	199	208	218	228	237	245	253	260
0.1 krone	130	130	129	128	128	86	:	:	:	:	:

Payment infrastructure

Table 5: Institutional infrastructure

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number of banks	153	**152**	**148**	**149**	**147**	**149**	**149**	**149**	**145**	**142**
Savings banks	129	129	127	126	124	123	121	118	113	111
Commercial banks	16	15	13	14	15	16	18	20	20	19
Number of foreign bank branches in Norway	8	8	8	9	8	10	10	11	12	12
Electronic money institutions	:	4	5	5	4	3	3	3	3	3

Table 6: Number of agreements

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Online banking agreements	**1 340 661**	**1 934 318**	**2 429 694**	**2 976 690**	**3 282 793**	**4 009 321**	**4 438 137**	**4 841 244**	**5 299 502**	**5 549 230**	**5 779 207**
Online banking agreements – retail customers	:	:	:	:	3 221 839	3 683 843	4 089 644	4 471 351	4 865 720	5 097 505	5 300 353
Online banking agreements – corporate customers	:	:	:	:	60 954	325 478	348 493	369 893	433 782	451 725	478 854
Agreements to offer electronic invoicing (eFaktura) – corporate customers	:	:	:	:	:	330	460	532	648	770	945
Agreements on reciept of electronic invoicing (eFaktura) – retail customers	:	:	:	:	:	2 149 356	2 914 946	4 074 429	5 249 722	6 358 929	7 932 093
Company terminal giro agreements	:	:	:	:	:	27 904	28 707	29 127	32 983	33 466	26 153
Postal giro agreements	2 361 031	1 787 462	1 707 428	1 540 768	1 453 825	1 189 770	1 152 349	906 957	810 818	759 995	723 867
Direct debit agreements (AvtaleGiro and AutoGiro)	4 044 848	4 483 286	4 901 219	5 505 933	6 305 218	7 523 461	8 544 208	9 523 732	10 707 639	11 933 080	13 162 659
AvtaleGiro – payees	6 473	6 883	7 194	7 905	8 761	9 554	10 373	11 135	11 945	12 619	13 130
AutoGiro – payees	1 200	1 265	1 232	1 187	1 243	1 441	1 350	1 170	1 342	716	708

Table 7: Number of issued cards (in thousands), number of functions in issued cards (in thousands) and number of terminals

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number of issued cards	**6 081**	**6 395**	**6 931**	**7 616**	**7 872**	**9 187**	**9 908**	**10 629**	**11 644**	**12 190**	**12 345**
Chip cards	:	:	:	:	:	1 235	2 540	3 848	6 516	10 066	11 600
Magnetic stripe cards	:	:	:	:	:	7 953	7 368	6 781	5 127	2 124	745
Number of functions in issued cards	**10 075**	**10 575**	**11 322**	**12 298**	**12 449**	**14 169**	**15 335**	**16 772**	**17 837**	**19 015**	**19 480**
Debit functions	**7 991**	**8 212**	**8 600**	**9 326**	**9 107**	**10 138**	**10 519**	**11 899**	**11 789**	**12 968**	**13 564**
BankAxept	4 287	4 362	4 527	4 985	4 894	5 537	5 569	6 218	6 057	6 620	6 897
Payment cards issued by international card companies	3 704	3 850	4 073	4 341	4 214	4 601	4 949	5 681	5 732	6 349	6 667
Billing functions (payment cards issued by international card companies)	**445**	**438**	**451**	**470**	**451**	**478**	**522**	**535**	**542**	**528**	**593**
Credit functions	**1 638**	**1 925**	**2 271**	**2 502**	**2 891**	**3 553**	**4 294**	**4 338**	**5 506**	**5 519**	**5 322**
Domestic credit cards	630	681	646	535	546	548	647	625	629	642	662
Payment cards issued by international card companies	1 008	1 244	1 624	1 967	2 345	3 005	3 647	3 713	4 877	4 877	4 660
Number of terminals that accept BankAxept cards	**73 832**	**82 294**	**93 456**	**94 386**	**96 591**	**100 021**	**109 821**	**119 953**	**122 359**	**125 684**	**130 397**
ATMs	**2 144**	**2 188**	**2 217**	**2 180**	**2 184**	**2 250**	**2 272**	**2 283**	**2 253**	**2 193**	**2 194**
Payment teminals (EFTPOS)	**71 688**	**80 106**	**91 239**	**92 206**	**94 407**	**97 771**	**107 549**	**117 670**	**120 106**	**123 491**	**128 203**
Owned by banks	59 184	65 374	66 207	68 197	66 786	74 303	75 460	77 804	77 892	:	:
Owned by others	12 504	14 732	25 032	24 009	27 621	23 468	32 089	39 866	42 214	:	:
Number of locations with payment terminals (EFTPOS) that accept BankAxept cards	**49 328**	**52 705**	**59 100**	**63 976**	**73 242**	**78 656**	**85 490**	**94 708**	**96 152**	**97 722**	**100 758**

Retail payment services

Table 8: Use of payment services (in millions of transactions)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total	**848.3**	**960.4**	**1 039.3**	**1 144.9**	**1 235.5**	**1 341.0**	**1 476.3**	**1 602.6**	**1 699.8**	**1 835.6**	**1 975.4**
Debit and credit transfers (giros)	**397.5**	**440.5**	**442.8**	**465.6**	**480.4**	**489.3**	**510.7**	**526.6**	**540.0**	**561.9**	**573.9**
Electronic[1]	268.1	331.3	348.9	384.3	411.8	437.4	462.3	483.9	503.6	533.5	550.0
Paper-based	129.3	109.3	93.9	81.3	68.6	51.9	48.4	42.7	36.5	28.4	23.9
Payment cards (goods purchases)	**448.0**	**517.8**	**595.0**	**678.1**	**754.2**	**851.0**	**965.1**	**1 075.6**	**1 159.5**	**1 273.5**	**1 401.4**
Electronic	439.0	508.0	584.7	664.2	737.9	830.7	960.3	1 073.2	1 157.7	1 271.8	1 399.6
Manual	9.0	9.8	10.3	13.9	16.3	20.4	4.8	2.4	1.9	1.7	1.8
Cheques	**2.9**	**2.0**	**1.5**	**1.2**	**0.8**	**0.7**	**0.5**	**0.4**	**0.3**	**0.2**	**0.2**

[1] Number of electronic giros in 2001 does not include miscellaneous credit transfers, e.g. standing orders.

Table 9: Debit and credit transfers (giros) (in millions of transactions)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total	**396.7**	**440.3**	**442.8**	**465.6**	**480.4**	**489.3**	**510.7**	**526.6**	**540.0**	**561.9**	**573.9**
Credit transfers[1]	**343.5**	**393.9**	**395.5**	**418.2**	**431.6**	**439.6**	**453.5**	**467.2**	**474.5**	**491.3**	**497.9**
Electronic	**234.5**	**299.9**	**314.8**	**348.5**	**371.9**	**395.6**	**412.7**	**430.5**	**443.6**	**467.1**	**477.1**
Company terminal giro	143.8	153.2	164.4	160.2	95.8	51.5	46.1	43.2	44.1	44.9	47.1
Online banking	62.0	81.4	101.5	138.4	227.8	293.6	318.8	340.4	349.7	371.6	378.8
Online banking solutions for retail customers	62.0	:	91.6	112.0	131.8	144.0	154.2	171.2	205.4	220.2	230.4
Online banking solutions for corporate customers	-	:	9.9	26.4	96.0	149.6	164.6	169.2	144.4	151.4	148.5
Telegiros	28.7	26.8	25.5	24.8	21.8	16.9	13.9	12.2	12.7	11.1	9.7
Miscellaneous other electronic credit transfers	:	38.5	23.4	25.1	26.4	33.6	33.8	34.7	37.1	39.5	41.5
Paper-based	**109.1**	**94.0**	**80.6**	**69.7**	**59.8**	**44.0**	**40.8**	**36.7**	**30.9**	**24.2**	**20.8**
Company terminal giros and online banking as money order	5.6	4.9	4.2	3.0	2.6	1.0	1.7	1.3	1.2	0.9	0.7
Postal giros	74.4	61.7	52.1	44.6	38.0	32.6	29.0	26.1	23.8	19.9	17.7
Giros delivered at the counter – account debits	28.3	27.1	24.4	22.0	19.2	10.4	10.1	9.3	5.9	3.4	2.4
Miscellaneous giros registered in banks[2]	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Direct debits	**33.6**	**31.3**	**34.1**	**35.8**	**39.9**	**41.8**	**49.6**	**53.4**	**59.9**	**66.4**	**72.8**
Giros delivered at the counter – cash payments	**19.5**	**15.0**	**13.2**	**11.6**	**8.9**	**7.8**	**7.6**	**6.0**	**5.6**	**4.2**	**3.1**

[1] Figures for credit transfers in 2001 do not include miscellaneous credit transfers, including standing orders.
[2] Miscellaneous giros registered in banks include both cash payments and account debits.

Table 10a: Use of payment cards (in millions of transactions)[1]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total use of Norwegian cards (in Norway and abroad)	**563.6**	**631.1**	**704.7**	**786.6**	**862.2**	**957.6**	**1 070.7**	**1 182.0**	**1 259.7**	**1 368.8**	**1 492.9**
Goods purchases	**448.0**	**517.8**	**595.0**	**678.1**	**754.5**	**851.0**	**965.1**	**1 075.6**	**1 159.5**	**1 273.5**	**1 401.4**
Goods purchases without cashback	323.8	385.2	456.8	533.6	618.5	769.1	887.4	1 002.4	1 088.5	1 208.3	1 340.8
Goods purchases with cashback	124.2	132.6	138.2	144.6	135.9	81.9	77.7	73.2	71.1	65.2	60.6
Cash withdrawals without goods purchases	**115.7**	**113.3**	**109.7**	**108.5**	**107.8**	**106.6**	**105.6**	**106.4**	**100.1**	**95.3**	**91.6**
Use of Norwegian cards by function											
Debit functions	**536.5**	**601.4**	**669.5**	**743.6**	**809.2**	**904.2**	**1 001.3**	**1 102.8**	**1 172.1**	**1 270.6**	**1 375.4**
BankAxept	496.7	548.3	615.3	681.7	745.7	817.4	896.1	987.7	1 045.0	1 123.6	1 207.7
Payment cards issued by international card companies	39.8	53.1	54.2	61.9	63.5	86.8	105.3	115.1	127.1	146.9	167.7
Billing functions (payment cards issued by international card companies)	**14.8**	**13.9**	**14.8**	**16.3**	**19.1**	**17.7**	**20.5**	**22.6**	**21.4**	**19.1**	**19.5**
Credit functions	**12.3**	**15.7**	**20.4**	**26.7**	**33.9**	**35.7**	**48.8**	**56.5**	**66.2**	**79.1**	**98.1**
Domestic credit cards	3.6	4.5	5.3	5.7	6.1	6.5	7.8	8.8	8.0	6.7	6.2
Payment cards issued by international card companies	8.8	11.2	15.1	21.0	27.8	29.2	40.9	47.8	58.2	72.4	91.9
Use of Norwegian cards abroad	**26.2**	**31.5**	**36.2**	**38.3**	**38.8**	**50.6**	**70.4**	**74.4**	**82.7**	**103.4**	**122.9**
Goods purchases	19.0	23.2	27.0	29.8	30.6	42.3	58.2	60.3	69.0	88.9	107.7
Cash withdrawals	7.1	8.3	9.2	8.6	8.3	8.3	12.2	14.1	13.7	14.5	15.2
Use of foreign cards in Norway	**7.8**	**8.6**	**9.5**	**10.8**	**13.6**	**14.3**	**14.3**	**16.3**	**17.5**	**19.3**	**21.6**
Goods purchases	6.5	7.3	8.1	9.3	12.4	12.6	11.7	13.5	15.1	17.0	19.2
Cash withdrawals	1.3	1.4	1.4	1.5	1.3	1.7	2.7	2.8	2.4	2.3	2.3

[1] Figures in the table apply to both manual and electronic card use (card use in EFTPOS terminals and online). Figures for 2001 do not include the use of international payment cards in terminals owned by entities other than banks and oil companies.

Table 10b: Use of terminals (in millions of transactions)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Use of Norwegian terminals[1]	**578.3**	**633.3**	**709.6**	**780.9**	**857.3**	**941.1**	**1 035.1**	**1 146.3**	**1 221.4**	**1 308.6**	**1 411.7**
Cash withdrawals from ATMs	109.0	103.5	102.1	99.3	98.7	99.8	95.9	94.9	88.8	83.0	78.6
Goods purchases in EFTPOS terminals that accept BankAxept	446.1	500.8	575.6	638.5	718.1	797.6	868.1	967.5	1 064.5	1 151.2	1 236.8
Of which BankAxept goods purchases with cashback	124.2	132.6	138.2	144.6	135.9	81.9	77.7	73.2	71.1	65.2	60.6
Goods purchases in other Norwegian payment terminals	23.2	29.0	31.9	43.1	40.5	43.7	71.0	84.0	68.2	74.4	96.3
Use of Norwegian cards in Norwegian terminals	**571.2**	**621.7**	**696.2**	**772.3**	**846.8**	**927.0**	**1 021.9**	**1 130.0**	**1 203.9**	**1 289.2**	**1 390.0**
Cash withdrawals from ATMs	**107.7**	**102.1**	**100.3**	**99.2**	**98.8**	**98.1**	**93.3**	**92.1**	**86.4**	**80.7**	**76.3**
BankAxept	102.0	96.6	95.6	93.2	91.7	88.7	86.7	84.5	78.9	74.6	70.5
Domestic credit cards	1.2	1.0	1.4	1.1	0.8	1.1	0.9	0.8	0.7	0.7	0.6
Cards issued by international card companies	4.5	4.5	3.3	4.9	6.3	8.4	5.6	6.8	6.7	5.4	5.2
Goods purchases in payment terminals	**463.5**	**519.6**	**595.9**	**673.1**	**748.0**	**828.9**	**928.6**	**1 037.9**	**1 117.5**	**1 208.5**	**1 313.7**
BankAxept - goods purchases (including purchases with cashback) in EFTPOS terminals	394.7	451.7	519.7	588.4	654.1	728.7	809.4	903.1	966.1	1 048.9	1 137.1
Domestic credit cards - goods purchases	2.0	3.0	3.8	4.1	4.8	5.3	6.7	7.8	7.1	5.8	5.3
Cards issued by international card companies - goods purchases	29.7	34.4	41.9	51.8	61.3	70.4	90.9	105.9	119.5	133.5	154.6
Cards owned by oil companies	37.1	30.5	30.4	28.8	27.8	24.5	21.6	21.1	24.8	20.3	16.7
Use of foreign cards in Norway	**7.1**	**11.6**	**13.4**	**8.5**	**10.5**	**14.1**	**13.2**	**16.3**	**17.5**	**19.4**	**21.7**

[1] Figures for card use for goods purchases at payment terminals/EFTPOS terminals include online card use.

Table 11: Cross-border transfers registered in the Register of Crossborder Transactions and Currency Exchange (in thousands of transactions)

	2006	2007	2008	2009	2010	2011
Transfers from Norway	**5 422.5**	**6 298.6**	**6 521.9**	**6 785.1**	**7 337.2**	**8 144.9**
SWIFT	5 171.1	5 861.4	5 919.3	6 094.9	6 576.5	7 340.9
Foreign currency cheques	97.0	133.1	159.2	170.1	171.5	158.6
Other transfers (MoneyGram, Western Union, etc.)	154.5	304.1	443.5	520.1	589.2	645.4
Transfers to Norway	**2 784.8**	**2 791.7**	**2 872.9**	**2 912.3**	**3 124.9**	**3 351.1**
SWIFT	2 773.7	2 743.5	2 822.7	2 863.2	3 072.5	3 299.3
Foreign currency cheques	3.2	36.7	34.8	28.7	28.3	25.9
Other transfers (MoneyGram, Western Union, etc.)	7.9	11.5	15.5	20.4	24.1	25.8

Table 12: Use of payment services (in billions of NOK)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total	**5 951.8**	**6 225.1**	**6 934.7**	**8 963.5**	**8 247.9**	**9 301.6**	**10 865.9**	**11 714.6**	**11 536.7**	**12 522.0**	**13 303.5**
Debit and credit transfers (giros)	**5 695.1**	**5 943.5**	**6 653.3**	**8 656.0**	**7 909.5**	**8 904.8**	**10 428.8**	**11 229.7**	**11 031.0**	**11 986.0**	**12 727.3**
Electronic[1]	5 156.0	5 457.2	6 242.0	8 283.6	7 662.1	8 680.1	10 212.2	11 042.9	10 868.5	11 854.7	12 607.6
Paper-based	539.0	486.3	411.3	372.4	247.4	224.7	216.5	186.8	162.5	131.3	119.7
Payment cards (goods purchases)	**184.2**	**224.9**	**236.6**	**265.0**	**305.5**	**381.0**	**424.3**	**473.5**	**493.6**	**525.7**	**568.5**
Electronic	175.4	215.4	227.9	254.1	289.5	365.1	418.3	470.0	491.1	523.2	565.6
Manual	8.9	9.5	8.7	10.9	16.0	15.9	6.0	3.5	2.5	2.5	2.9
Cheques	**72.5**	**56.6**	**44.9**	**42.5**	**32.9**	**15.8**	**12.9**	**11.3**	**12.0**	**10.3**	**7.7**

[1] Number of electronic giros in 2001 does not include miscellaneous credit transfers, e.g. standing orders.

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Table 13: Debit and credit transfers (giros) (in billions of NOK)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Totalt	**5 695.1**	**5 943.5**	**6 653.3**	**8 656.0**	**7 909.5**	**8 904.8**	**10 428.8**	**11 229.7**	**10 031.0**	**11 986.0**	**12 727.3**
Credit transfers[1]	**5 410.5**	**5 714.4**	**6 431.5**	**8 396.5**	**7 612.6**	**8 624.8**	**10 149.4**	**10 991.7**	**10 798.5**	**11 740.3**	**12 482.8**
Electronic	**4 971.2**	**5 308.0**	**6 077.4**	**8 105.1**	**7 449.2**	**8 456.6**	**9 992.5**	**10 859.6**	**10 681.2**	**11 636.4**	**12 377.1**
Company terminal giro	4 716.2	4 678.4	5 225.3	6 553.4	2 976.6	2 294.1	2 921.4	2 102.9	2 576.2	2 904.7	3 225.4
Online banking	197.3	409.1	650.7	1 351.8	4 272.8	5 772.4	6 496.3	8 239.4	7 567.7	8 052.4	8 493.0
Online banking solutions for retail customers	197.3	:	332.6	436.4	517.3	585.4	650.1	775.6	966.9	1 078.3	1 185.6
Online banking solutions for corporate customers	-	:	318.1	915.4	3 755.6	5 187.0	5 846.2	7 463.8	6 600.8	6 974.1	7 307.4
Telegiros	57.6	54.3	51.0	48.4	43.8	37.5	31.0	29.7	32.8	29.0	26.1
Miscellaneous other electronic credit transfers	:	166.3	150.4	151.5	155.9	352.6	543.8	487.6	504.5	650.2	632.6
Paper-based	**439.3**	**406.4**	**354.1**	**291.4**	**163.5**	**168.2**	**156.9**	**132.1**	**117.2**	**103.9**	**105.7**
Company terminal giros and online banking as money order	42.0	36.8	33.4	27.2	4.5	11.7	15.7	10.5	13.8	11.4	7.7
Postal giros	195.5	175.7	184.6	161.1	103.0	81.7	72.0	62.6	53.1	43.5	38.0
Giros delivered at the counter – account debits	189.0	190.0	136.1	103.1	55.9	74.7	69.2	59.0	50.3	48.9	60.0
Miscellaneous giros registered in banks[2]	12.9	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Direct debits	**184.8**	**149.2**	**164.6**	**178.5**	**212.9**	**223.5**	**219.7**	**183.4**	**187.3**	**218.3**	**230.5**
Giros delivered at the counter – cash payments	**99.7**	**79.8**	**57.2**	**81.0**	**83.9**	**56.5**	**59.7**	**54.7**	**45.3**	**27.4**	**14.0**

[1] Figures for credit transfers in 2001 do not include miscellaneous credit transfers, including standing orders.
[2] Miscellaneous giros registered in banks include both cash payments and account debits.

Table 14a: Use of payment cards (in billions of NOK)[1]

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total use of Norwegian cards (in Norway and abroad)	**355.7**	**382.9**	**411.6**	**440.0**	**480.8**	**510.8**	**556.6**	**609.0**	**625.1**	**653.7**	**695.2**
Goods purchases	184.2	224.9	236.6	265.0	305.4	352.2	396.1	445.8	465.8	500.1	544.2
Cashback from EFTPOS terminals	44.7	47.5	48.3	48.3	49.4	28.8	28.1	27.8	27.8	25.7	24.3
Cash withdrawals without goods purchases	126.8	110.4	126.6	126.7	126.0	129.8	132.4	135.5	131.4	128.0	126.7
Use of Norwegian cards by function											
Debit functions	**320.0**	**344.5**	**371.0**	**393.5**	**429.1**	**447.3**	**483.7**	**525.9**	**535.8**	**561.4**	**589.5**
BankAxept	291.8	309.7	335.7	354.1	386.9	398.0	422.2	461.7	465.2	487.0	507.6
Payment cards issued by international card companies	28.2	34.8	35.4	39.4	42.2	49.2	61.5	64.3	70.6	74.4	81.9
Billing functions (payment cards issued by international card companies)	**18.1**	**17.5**	**16.9**	**17.8**	**19.7**	**19.0**	**22.9**	**25.1**	**22.9**	**20.5**	**21.7**
Credit functions	**17.6**	**20.8**	**23.8**	**28.8**	**32.0**	**44.5**	**50.0**	**58.0**	**66.4**	**71.9**	**84.0**
Domestic credit cards	7.4	8.3	7.5	7.6	5.3	8.7	9.5	10.1	8.9	8.3	8.4
Payment cards issued by international card companies	10.3	12.5	16.2	21.1	26.7	35.8	40.4	47.9	57.4	63.5	75.7
Use of Norwegian cards abroad	**25.6**	**29.3**	**33.6**	**34.4**	**35.5**	**40.5**	**58.5**	**62.2**	**66.8**	**75.1**	**87.6**
Goods purchases	15.0	17.4	20.4	21.8	23.5	28.5	40.7	41.9	45.6	53.8	65.9
Cash withdrawals	10.6	11.9	13.3	12.6	12.0	12.0	17.8	20.3	21.1	21.4	21.7
Use of foreign cards in Norway	**5.8**	**5.9**	**6.9**	**8.5**	**9.6**	**10.2**	**10.0**	**12.2**	**12.6**	**13.7**	**14.8**
Goods purchases	4.1	4.2	5.0	6.3	7.7	7.9	6.3	8.4	9.3	10.6	11.7
Cash withdrawals	1.7	1.7	1.9	2.2	1.8	2.4	3.7	3.8	3.3	3.1	3.1

[1] Figures in the table apply to both manual and electronic card use (card use in EFTPOS terminals and online). Figures for 2001 do not include the use of international payment cards in terminals owned by entities other than banks and oil companies.

Table 14b: Use of terminals (in billions of NOK)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Use of Norwegian terminals[1]	**:**	**367.0**	**395.1**	**419.7**	**454.8**	**483.1**	**515.4**	**570.6**	**583.7**	**605.0**	**633.1**
Cash withdrawals from ATMs	115.8	114.0	115.0	113.1	112.0	119.2	117.8	118.5	113.2	109.5	107.9
Goods purchases in EFTPOS terminals that accept BankAxept cards	:	183.5	211.2	231.2	272.6	305.8	319.7	364.7	395.7	422.5	450.4
Cashback with goods purchases using BankAxept cards	44.7	47.5	48.3	48.3	49.4	28.8	28.1	27.8	27.8	25.7	24.3
Goods purchases at other Norwegian payment terminals	18.3	21.9	20.5	27.1	20.8	29.3	49.8	59.6	47.0	47.3	50.4
Use of Norwegian cards in Norwegian terminals	**339.0**	**357.6**	**387.5**	**413.3**	**452.4**	**473.1**	**505.8**	**558.5**	**571.0**	**591.0**	**618.3**
Cash withdrawals from ATMs	**114.3**	**112.4**	**112.6**	**112.8**	**112.1**	**116.9**	**114.1**	**114.8**	**109.9**	**106.4**	**104.8**
BankAxept	107.0	105.0	105.7	104.2	101.9	103.1	103.2	102.8	98.4	96.8	95.4
Domestic credit cards	1.4	1.4	2.1	1.7	1.3	1.6	1.4	1.4	1.2	1.1	1.0
Cards issued by international card companies	5.9	6.0	4.9	7.0	8.9	12.2	9.5	10.6	10.4	8.5	8.4
Cashback with goods purchases using BankAxept cards	**44.7**	**47.5**	**48.3**	**48.3**	**49.4**	**28.8**	**28.1**	**27.8**	**27.8**	**25.7**	**24.3**
Good purchases in payment terminals	**180.0**	**197.6**	**226.5**	**252.2**	**290.9**	**327.4**	**363.6**	**415.9**	**433.3**	**458.9**	**488.7**
BankAxept – goods purchases in EFTPOS terminals	140.1	157.2	181.6	201.7	235.4	266.1	290.9	331.0	338.9	364.3	387.4
Domestic credit cards – goods purchases	3.2	4.3	5.0	5.1	5.7	5.9	6.8	7.7	6.7	6.0	5.8
Cards issued by international card companies – goods purchases	22.5	24.6	28.0	33.1	36.6	44.8	55.1	63.9	74.3	76.1	84.7
Cards owned by oil companies	14.2	11.6	12.0	12.4	13.1	10.6	10.8	13.3	13.4	12.5	10.8
Use of foreign cards in Norwegian terminals	**:**	**9.4**	**7.5**	**6.3**	**2.5**	**10.0**	**9.6**	**12.1**	**12.7**	**14.0**	**14.8**

[1] Figures for card use for goods purchases at payment terminals/EFTPOS terminals include online card use.

Table 15: Cross-border transfers registered in the Register of Crossborder Transactions and Currency Exchange (in millions of NOK)

	2006	2007	2008	2009	2010	2011
Transfers from Norway	**:**	**5 791 416**	**6 503 064**	**6 549 533**	**7 124 450**	**9 909 615**
SWIFT	:	5 153 212	5 818 297	5 544 906	5 496 777	7 928 954
Foreign currency cheques	766 232	636 924	683 043	1 002 642	1 625 499	1 978 367
Other transfers (MoneyGram, Western Union, etc.)	620	1 280	1 724	1 985	2 174	2 294
Transfers to Norway	**:**	**4 047 008**	**4 578 060**	**4 377 504**	**4 366 061**	**5 023 605**
SWIFT	:	4 039 783	4 574 037	4 376 451	4 365 003	5 022 860
Foreign currency cheques	5 184	7 150	3 928	910	934	620
Other transfers (MoneyGram, Western Union, etc.)	43	75	95	144	125	125

Interbank

Table 16: Average daily turnover in clearing and settlement systems (transactions)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
NICS											
NICS Gross	303	300	596	611	532	547	593	605	524	568	548
NICS SWIFT Net[1]	4 719	4 925	5 155	4 480	4 744	5 301	5 908	6 390	6 269	-	-
NICS Net (million)[2]	3.4	3.7	4.0	4.3	4.7	5.1	5.5	5.9	6.5	6.8	7.2
NBO											
Total number of transactions	:	:	:	:	:	:	:	:	:	1 151	1 138
RTGS Gross transactions outside of NICS[3]	:	:	:	:	:	:	199	272	158	288	288

[1] Phased out in June 2010.

[2] Previous NICS Retail and NICS SWIFT Net payments below NOK 25m included as from June 2010 in NICS Net.

[3] Does not include transactions related to account management, interest, notes/coins or the government consolidated account scheme (SKK).

Table 17: Average daily turnover in clearing and settlement systems (in billions of NOK)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
NICS	**211.4**	**212.5**	**248.7**	**195.7**	**200.8**	**224.8**	**254.5**	**246.6**	**213.1**	**196.5**	**221.4**
NICS Gross	151.2	149.5	187.8	129.4	135.5	155.3	176.8	165.9[1]	124.1	107.2	119.1
NICS SWIFT Net[2]	16.1	16.2	12.6	5.2	5.7	6.7	7.6	7.3	6.1	-	-
NICS Net[3]	44.1	46.8	48.3	61.1	59.6	62.8	70.1	73.4	82.9	89.3	102.3
NBO	**172.1**	**169.2**	**206.8**	**152.3**	**160.8**	**185.2**	**226.1**	**224.9**	**186.6**	**176.4**	**183.4**
NICS Gross	150.7	149.5	187.7	128.9	135.5	155.3	180.2	163.9[1]	122.0	106.7	119.3
RTGS Gross transactions outside of NICS	6.9	4.8	7.2	11.1	12.1	16.1	31.1	45.6	37.7	42.8	42.5
NICS SWIFT Net[2]	5.3	5.5	2.1	1.0	0.9	1.0	1.2	1.1	1.6	-	-
NICS Net[3]	6.8	6.9	6.7	7.6	8.5	8.1	8.1	9.2	17.1	16.4	12.5
VPO and Oslo Clearing	2.3	2.5	3.1	3.7	3.8	4.7	5.5	5.1	8.2	10.5	9.0
VPO	:	:	:	:	:	4.4	5.1	4.9	8.0	10.4	8.9
Oslo Clearing	:	:	:	:	:	0.3	0.4	0.3	0.2	0.1	0.1

[1] Gross transactions through NICS: The difference in value under NICS and NBO is partly due to the use of a backup solution in October 2008.

[2] Phased out in June 2010.

[3] Previous NICS Retail and NICS SWIFT Net payments below NOK 25m included as from June 2010 in NICS Net.

Table 18: Number of participants in clearing and settlement systems (at year-end)

	2006	2007	2008	2009	2010	2011
Norges Bank's settlement system (NBO): Banks with account in Norges Bank	145	142	143	140	134	129
Norges Bank's settlement system (NBO): Banks with retail net settlement in Norges Bank	23	23	22	21	21	21
DNB	104	103	103	106	105	103
Sparebank 1 Midt-Norge	17	18	16	16	13	12
Norwegian Interbank Clearing System (NICS)	146	146	143	145	142	138

Table 19: Participation in SWIFT

	2005		2006		2007		2008		2009		2010		2011	
	Nor-wegian	Total	Nor-wegian	Total	Nor-wegian	Total	Nor-wegian	Total	Nor-wegian	Total	Nor-wegian	Total	Nor-wegian	Total
Total	**32**	**7 863**	**32**	**8 103**	**32**	**8 386**	**35**	**8 830**	**36**	**9 281**	**37**	**9 705**	**38**	**10 118**
Members	14	2 229	13	2 289	13	2 268	13	2 276	13	2 356	13	2 344	13	2 334
Sub-members/domestic users covered by members abroad	11	3 060	11	3 124	10	3 209	12	3 305	12	3 306	12	3 331	13	3 355
Participants	7	2 574	8	2 690	9	2 909	10	3 249	11	3 619	12	4 030	12	4 429

Tabell 20: SWIFT message traffic to/from Norway (in thousands of transactions)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number of messages sent	10 521	11 239	12 931	18 590	22 060	30 090	42 300	57 640	52 994	45 071	35 266
Number of messages received	8 163	8 747	10 391	13 650	13 500	15 250	17 300	20 200	19 430	20 362	21 784
Global SWIFT-traffic	1 533 906	1 817 444	2 047 564	2 299 074	2 518 290	2 864 540	3 501 200	3 854 000	3 760 314	4 031 935	4 431 100

Prices

Table 21: Prices for domestic payment services, retail customers. Weighted average (NOK). 1 January each year

	2004 to 2008[1]			2009 to 2012[2]							
				Non-loyalty schemes				Loyalty schemes			
	2004	2006	2008	2009	2010	2011	2012	2009	2010	2011	2012
Payments											
Online banking (with CID), per payment	2.0	2.1	2.0	1.6	1.6	1.5	1.7	0.1	0.1	0.0	0.0
Online banking, annual fee	:	:	:	22.8	29.0	10.6	19.6	0.0	0.2	0.3	1.6
Direct debit (AvtaleGiro), per payment	:	:	2.1	1.6	1.6	1.5	1.6	0.2	0.1	0.0	0.0
Mobile banking (with CID), per payment	:	:	:	1.6	1.7	1.6	1.7	0.2	0.1	0.1	0.0
Mobile banking - transfers between own accounts, per transfer	:	:	:	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0
Mobile banking - information by SMS	:	:	:	2.6	2.4	2.5	2.5	1.7	1.8	2.1	1.4
Credit transfer via postal giro, per payment	6.5	6.9	7.0	7.2	7.2	7.5	8.1	7.4	7.7	8.1	8.3
Giro over the counter - account debit, per payment	30.0	33.4	33.6	40.4	46.9	49.0	56.5	35.5	38.6	39.9	54.6
Giro over the counter - cash payment, per payment	41.9	42.0	43.7	60.6	62.8	63.4	79.1	55.4	57.4	59.9	78.2
BankAxept cards in payment terminals (EFTPOS), per payment	2.1	2.3	2.3	1.7	1.7	1.6	1.8	0.0	0.0	0.0	0.1
Credit cards from international card companies, annual fee	:	:	:	169.2	136.9	158.5	150.3	25.3	17.5	20.2	27.4
BankAxept cards (combined with debit card from int. card comp.), annual fee	265.9	260.7	266.6	243.5	243.3	246.2	260.7	171.5	192.1	191.1	208.6
Cheques - retail customers, per cheque booklet	:	:	:	23.5	14.1	19.3	21.3	19.9	20.8	15.3	4.2
Cheques - retail customers, per cheque payment	20.6	27.3	:	19.6	23.5	21.0	40.0	17.5	22.8	23.7	35.7
ATM withdrawals using BankAxept											
Own bank's ATMs during opening hours, per withdrawal	0.0	0.2	0.2	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0
Own bank's ATMs outside opening hours, per withdrawal	3.9	3.9	3.8	2.8	2.5	2.4	2.5	0.1	0.0	0.0	0.1
Other banks' ATMs during opening hours, per withdrawal	4.7	6.4	6.6	5.3	5.0	4.9	4.9	5.0	5.1	5.2	5.5
ATM withdrawals using credit cards from international card companies											
Own bank's ATMs during opening hours, per withdrawal	:	:	:	27.2	25.3	25.3	24.8	30.1	29.8	29.4	29.3
Other banks' ATMs during opening hours, per withdrawal	:	:	:	27.3	25.4	24.9	24.9	30.3	29.9	29.5	29.3

[1] Average prices for customers who do not belong to loyalty schemes or receive any other discounts. Prices are based on a survey of 24 banks with an 85% market share by deposits in transactional accounts. Average prices are calculated by weighting each bank's prices by deposits in transactional accounts and then weighting average prices for commercial and savings banks by their percentage share of payment service transactions.

[2] New average prices as from 2009 for 104 banks with a 93% market share by deposits in salary accounts. Prices from Finansportalen (Norwegian Consumer Council). Average prices are calculated by weighting each bank's prices by the bank's percentage share of deposits on salary accounts. For banks with several customer loyalty schemes, the median price for the bank's customer loyalty schemes has been used to calculate the average price for all banks for services under customer loyalty schemes.

Table 22: Prices for domestic payment services, corporate customers. Weighted average (NOK). 1 January each year[1]

	2002	2004	2006	2008	2009	2010	2011	2012
Payments								
Electronic giro services								
Direct Remittance without notification	2.8	3.0	3.4	:	:	:	:	:
Direct Remittance with notification	4.8	5.2	5.5	:	:	:	:	:
Direct Remittance with CID	1.4	1.5	1.6	:	:	:	:	:
Other company terminal giro without notification	2.1	1.6	1.7	:	:	:	:	:
Other company terminal giro with notification	3.6	3.8	3.7	:	:	:	:	:
Other company terminal giro with CID	1.0	1.0	2.0	:	:	:	:	:
Online banking - without notification	:	:	:	1.5	1.5	1.5	1.5	1.5
Online banking - with notification	:	:	:	4.2	4.1	4.2	4.2	4.2
Online banking - with CID	:	:	:	1.1	1.1	1.1	1.1	1.1
Paper-based giro services								
Direct Remittance sent as money order	32.6	35.7	47.9	:	:	:	:	:
Other company terminal giro sent as money order	32.6	35.3	37.2	:	:	:	:	:
Corporate online banking sent as money order	:	:	:	50.2	75.3	73.1	73.0	74.8
Receipt of payments								
Electronic giro services								
Direct debits (Avtalegiro) without notification from the bank	1.4	1.5	1.4	1.3	1.4	1.2	1.3	1.3
Optical Character Recognition (OCR) - File	1.1	1.2	1.3	1.3	1.3	1.3	1.4	1.4
GiroMail	:	:	:	0.0	0.0	0.0	0.0	0.0
Paper-based giro services								
Optical Character Recognition (OCR) - Return	3.7	3.9	4.4	3.3	3.2	3.9	4.4	2.9

[1] Average prices for customers who do not belong to loyalty schemes or receive any other discounts. Prices are based on a survey of 24 banks with an 85% market share by deposits in transactional accounts. Average prices are calculated by weighting each bank's prices by deposits in transactional accounts and then weighting average prices for commercial and savings banks by their percentage share of payment service transactions.

Table 23: Prices for transfers from Norway to EU/EEA countries. Weighted average (NOK) for a sample of banks. 1 January each year

	Electronic payment order/ automated processing							Manual payment order						
	2006	2007	2008	2009	2010	2011	2012	2006	2007	2008	2009	2010	2011	2012
Ordinary SWIFT transfer in NOK														
Without BIC and IBAN, NOK 2 500	59.9	64.7	64.7	65.8	63.8	64.3	61.3	136.4	136.4	145.8	157.8	157.1	161.7	162.9
With BIC and IBAN, NOK 2 500	40.6	45.6	45.4	58.3	57.0	56.9	56.4	125.0	128.6	131.0	143.0	146.1	150.2	152.3
Ordinary SWIFT transfer in EUR														
Without BIC and IBAN, NOK 2 500 equivalent	59.9	63.4	63.6	64.6	60.9	65.1	61.3	136.4	136.4	145.8	157.8	157.1	157.9	159.1
With BIC and IBAN, NOK 2 500 equivalent	32.5	33.9	29.9	29.7	28.9	28.7	28.7	110.1	122.6	126.5	139.9	142.8	146.6	148.7
SWIFT express transfer in NOK														
Without BIC and IBAN, NOK 150 000	299.2	348.0	332.7	349.3	330.2	331.7	338.9	381.1	381.6	387.7	405.0	396.3	402.7	402.6
With BIC and IBAN, NOK 150 000	289.9	305.7	300.3	308.1	299.4	300.1	307.5	371.5	373.9	373.0	390.3	385.3	391.3	391.8
SWIFT express transfer in EUR														
Without BIC and IBAN, NOK 150 000 equivalent	299.2	348.0	333.2	349.8	330.2	340.9	348.5	381.1	381.6	387.8	405.1	396.3	399.3	399.1
With BIC and IBAN, NOK 150 000 equivalent	282.4	303.4	298.0	304.8	296.5	296.8	294.4	362.3	373.9	372.4	389.6	384.6	390.5	391.1
Cheques to other countries														
Equivalent to NOK 2 500	-	-	-	-	-	-	-	202.5	204.6	207.1	221.5	218.4	203.6	222.9

Table 24: Prices for receipt of payments from EU/EEA countries. Weighted average (NOK) for a sample of banks. 1 January each year

	Receipt of payments from EU/EEA countries							
	2005	2006	2007	2008	2009	2010	2011	2012
Receipt of payments in EUR								
Without BIC and IBAN, NOK 2 500 equivalent[1]	96.4	86.4	80.8	80.8	59.9	63.0	61.1	60.8
Without BIC and IBAN, NOK 150 000 equivalent	97.9	93.0	85.1	84.6	62.8	66.0	64.4	81.6
With BIC and IBAN, NOK 2 500 equivalent[1]	21.6	13.2	12.6	10.4	16.0	17.2	18.5	18.6
With BIC and IBAN, NOK 150 000 equivalent	95.8	29.6	12.6	10.4	16.0	17.2	18.5	18.6
Receipt of payments in other currencies								
Without BIC and IBAN, NOK 2 500 equivalent[1]	97.9	96.5	92.9	90.6	70.2	71.6	70.5	70.2
Without BIC and IBAN, NOK 150 000 equivalent	97.9	96.5	98.0	96.4	96.7	93.2	92.2	91.4
With BIC and IBAN, NOK 2 500 equivalent[1]	95.8	96.5	92.3	90.2	69.6	71.1	70.5	70.2
With BIC and IBAN, NOK 150 000 equivalent	95.8	96.5	95.2	94.5	74.2	73.9	73.3	90.4

[1] The amount was NOK 50 000, not NOK 2 500, in 2005 and 2006.

Definitions and abbreviations

Only definitions and abbreviations that are specific to the Norwegian system are included. The international reader is assumed to find definitions of general concepts in material released by the BIS, EU, etc.

Autogiro: A form of direct debit whereby payment for an enterprise's outstanding claim is drawn directly from the payer's bank account on the due date.

Avtalegiro: A form of direct debit whereby funds to cover recurring payments are automatically drawn from the payer's bank account on the due date.

BankAxept card: Debit card issued by Norwegian banks and linked to the customer's bank account for use in Norway. It is the dominant card system for transactions in Norway.

Bedriftsterminalgiro (company terminal giro systems): Payment solutions for enterprises. The solutions require installation of software in the user's / enterprise's computer system. Used for both individual payments and retail payments to payees with or without bank accounts.

BSK (Bankenes Standardiseringskontor): Bank-owned company with tasks related to the establishment, maintenance and further development of Norwegian banking standards related to payment and information in banking infrastructure.

Combined payment card: Payment card with more than one of the following three functions: BankAxept card, domestic credit card and/or payment card issued by an international card company.

EVRY: Formerly EDB ErgoGroup. IT company established through the merger of Ergo Group AS and EDB Business Partner ASA. The company is a key provider of IT services to DNB, the Sparebank 1-group and Norges Bank.

FNO: Finance Norway (FNO) is the trade organisation for banks, insurance companies and other financial institutions in Norway.

Nasdaq OMX Oslo NUF: Central counterparty for energy derivatives.

NBO: Norges Bank's settlement system in which banks can settle claims and liabilities with other banks through their accounts in Norges Bank. The NBO comprises both gross and net settlement facilities.

NBO online: System providing real time information on banks' balance, liquidity and transactions in payment queues in NBO.

Nets: Nordic company providing payment, card and information services established through a merger of BBS (Norwegian company providing centralised management of payment transactions) and its Danish counterpart PBS Holding.

Nets Norge Infrastruktur: Subsidiary of Nets responsible for deliveries to NICS.

NICS: Norwegian Interbank Clearing System is the banks' joint clearing system for transactions denominated in NOK. It is used by all banks that are part of the industry's common payment services infrastructure. Cleared positions in NICS are settled in NBO.

NICS Gross: Transaction format for transactions that are sent one by one via NICS to NBO for settlement.

NICS Net: Transaction format for multilateral clearing of transactions for net settlement in NBO at set times of the day.

NOS Clearing: Central counterparty for freight derivatives, seafood derivatives, etc.

Oslo Clearing: Central counterparty for trading in equity capital instruments and derivatives with securities as the underlying instrument.

Postal giro: Paper-based credit transfer sent by the payer through the post to Nets Norway AS, which executes the payment transaction on behalf of the payer's bank. The payment is sent to NICS for clearing and settlement and information is forwarded to the payee's bank.

VPO: Norwegian securities settlement system.

VPS: Norwegian central securities depository.

Guide to the tables

The following section provides an explanation of sources for figures, data quality, calculation methods for averages and further details concerning the contents of the tables. Statistics for general data, means of payment in Norway, clearing and settlement have been compiled by Norges Bank, while other statistics have been compiled by Statistics Norway (SSB) as commissioned from Norges Bank.

Some data that appeared in the *Annual Report on Payment Systems* in 2010 have been revised in the current report.

Sources

- Information about cash in Norway: Norges Bank.
- Information about clearing and settlement: Norges Bank, NICS Operations Office, SWIFT and DNB.
- General data: Statistics Norway and Finanstilsynet (Financial Supervisory Authority of Norway).
- Information about giros, cheques, payment cards, ATMs and payment terminals: Finance Norway (FNO), Nets Norway AS, EVRY (formerly EDB ErgoGroup), Skandinavisk Data Center AS, Terra-Gruppen AS, Nordea Bank Norge ASA, DNB, Fokus Bank NUF, SEB Merchant Banking AB Oslo branch, Cultura Bank, SEB Kort AB, Ikano Bank SE Norway branch, Handelsbanken, Elavon Financial Services Norway branch, American Express Company AS, GE Money Bank, Entercard Norge AS, Statoil Norge AS, ST1 Norge AS, Uno-X Finans AS and A/S Norske Shell.
- Information about withdrawals from ATMs using domestic credit cards and payment cards issued by international card companies was provided by the owners of the ATMs until end-2005. Information as from 2006 has been provided by card issuers.
- Information about cross-border payments other than those executed using payment cards: Register of Crossborder Transactions and Currency Exchange (Norwegian Directorate of Customs and Excise).
- Information about banks' income from payment services: Database for public reporting of financial statements from banks and finance companies (ORBOF database, Statistics Norway).
- Prices for retail payment services as from 2009 are based on price information for 99 banks from www.finansportalen.no. These banks had 93% of the market measured by salary account deposits at the end of November 2011. Prior to 2009, prices for retail customers, prices for corporate customers and cross-border payments were collected from price lists and a survey of 24 banks. These banks had 85% of the market measured by deposits. All prices are as at 1 January.

Comments on individual tables

Table 6 – Number of agreements

- The number of agreements to offer and receive electronic invoices concerns agreements linked to the eFaktura service for retail customers (eFaktura B2C).

Table 7 – Number of issued cards, number of functions in issued cards and number of terminals

- The number of physical cards is lower than the number of functions in the cards. This is due to the large number of combined cards (i.e. cards with more than one function, see definition list).
- The statistics for the number of payment terminals only include EFTPOS terminals that accept BankAxept cards. The number of EFTPOS terminals owned by banks in the period 1991–2009 refers to terminals owned and leased by banks. Since 2009, most banks have transferred their lease agreements to Nets, so that the terminals are owned by Nets instead. Thus, as from 2010, only a minority of terminals are owned

by banks. The number of locations with payment terminals refers to shops, post office branches, etc.

Tables 8 and 12 – Use of payment services

- Miscellaneous other credit transfers (standing orders etc,) are not included in the figures for electronic credit transfers prior to 2002.

- Approximately 30% payments by cheque up to 2005 have been estimated by Norges Bank.

Tables 9 and 13 – Debit and credit transfers (giros)

- Figures for miscellaneous giros registered in banks include both cash payments and account debits. Figures for cash payments in 2005 have been estimated by Norges Bank in consultation with Nets (formerly BBS). Turnover figures for company terminal giros to end-2002 and money orders to end-2005 are in some cases based on estimates from Norges Bank. As from 2007, figures for online banking also include payments made by mobile phone/mobile banking.

Tables 10a and 14a – Use of payment cards

- Figures for use of cards in 2001 refer to manual use of payment cards and use of such cards in terminals that accept Bankkort/BankAxept cards. Figures as from 2002 refer to all manual and electronic use of payment cards.

- Figures for goods purchases with cashback are for cashback in EFTPOS terminals that accept BankAxept cards, whereas the figures for other cash withdrawals are for cash withdrawals at the counter and from ATMs.

- Figures for the use of Norwegian cards abroad and foreign cards in Norway refer primarily to payment cards issued by international card companies, including Visa, Eurocard, MasterCard, Diners, American Express and JCB cards (Japan Credit Bureau). There is some uncertainty attached to the figures for cards used across national borders in 2004–2006. As from 2006, the use of BankAxept cards in Norwegian-owned EFTPOS terminals abroad has been included in figures for the use of Norwegian cards abroad. In 2011, 4% of transactions and 3% of the turnover constituted such use of cards abroad.

Tables 10b and 14b – Use of terminals

- The tables show total use of Norwegian and foreign cards in domestic terminals. To illustrate terminal usage, the use of oil companies' cards are included, even though such cards are not defined as payment cards and included in Tables 10a and 14a.

- Figures for cashback up to 2006 are based on estimates from BBS and Norges Bank. The lower figures as from 2006 refer to registered cashback only.

- Figures for the use of payment cards in other Norwegian payment terminals refer to domestic credit cards and international payment cards in EFTPOS terminals that do not accept BankAxept cards and the use of various payment cards over the Internet.

- Information on ATM withdrawals using domestic credit cards and payment cards issued by international card companies until end-2005 comes from ATM owners, whereas information as from 2006 comes from card issuers.

Tables 11 and 15 – Cross-border transfers registered in the Register of Crossborder Transactions and Currency Exchange

- The statistics refer to payments registered in the Register of Crossborder Transactions and Currency Exchange in the period 2006–2011. There is some uncertainty attached to the figures for 2006.

Tables 21 to 24 – Prices for domestic payment transactions and cross-border transactions, cash withdrawals and receipt of payments.

- Prices for retail payment services (Table 21) are based on price information from www.finansportalen.no. There are two average prices for each service, one for loyalty scheme customers and one for non-loyalty scheme customers. Average prices are calculated by weighting prices for each bank based on that bank's share of salary account deposits. When a bank has more than one loyalty scheme with different prices for a service, the median of these prices is used to calculate the average price for all banks for services in loyalty schemes.

- Prices for corporate customers are collected from online price lists, and prices for cross-border payments are taken from surveys. Prices relate only to customers that do not belong to loyalty schemes or receive any other discounts. Average prices are calculated by weighting prices for each bank based on the bank's share of deposits in transactional accounts.

- The price for a postal giro refers to each form sent. Postage is an additional charge.

- Prices for receipt of direct debit (AvtaleGiro) payments refer to receipt of payment without notification.

- Cross-border prices refer to fixed sum transfers in the EEA with or without BIC and IBAN information. Prices do not include additional costs for cash payments, third country currency, confirmations or costs that the payer must cover for the payee.

Standard symbols in the tables

:	Incomplete information/will not be published
-	Zero
0	Less than 0.5 of the unit used

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