NORGES BANK

Annual Report on Payment Systems

2009 | May 2010

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Norges Bank

Oslo 2010

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Chief Editor: Svein Gjedrem
Design: Burson-Marsteller
Typography and print: 07 Gruppen AS
The text is set in 10.5 point Times New Roman / 9 point Univers.

ISSN 1503 – 8610 (online)

Norges Bank's Annual Report on Payment Systems

Norges Bank is responsible for promoting robust and efficient payment systems in accordance with the Norges Bank Act and the Payment Systems Act. The Norges Bank Act states that Norges Bank shall promote an efficient payment system in Norway and vis-à-vis other countries. The Payment Systems Act gives Norges Bank a special responsibility for the authorisation and supervision of systems for clearing and settlement of money transfers between banks.

Norges Bank oversees the payment systems in order to identify factors that may weaken the stability of the financial system. The work is primarily aimed at minimising risk in the clearing and settlement systems, but Norges Bank also monitors important trends in the payment system as a whole. Furthermore, Norges Bank provides for secure and efficient settlement of payments between banks in their accounts in Norges Bank, and supplies the community with banknotes and coins in a manner that promotes an efficient payment system.

Contents

Editorial

A secure and efficient payment system – with scope for improvement

Payment systems were robust during the financial crisis. This contributed to maintaining economic activity even though confidence in counterparties was low. Some markets that lacked good infrastructure were vulnerable. Improving infrastructure in a number of global markets is therefore important.

In Norway, payments are executed swiftly, securely and at low cost. When prices charged for payment services reflect the cost of producing the services, this results in a more cost-effective use of resources. Banks should therefore price cash services and other payment services on the basis of the costs involved in providing such services. Deficits on payment services must be paid for by other activities at banks. Earnings from payment services can support banks' willingness to invest in secure and sound payment systems in the future. Payment recipients may charge fees or give discounts that vary according to their costs resulting from the means of payment chosen by customers. This may help to ensure a more efficient payment system.

Cross-border payments are more expensive and time-consuming than payments within a country. Recent legislation has set an upper limit on the time available to banks and payment institutions for processing payments between EEA member states. From 2012, such payments will have to be completed within one day.

A high level of security is essential to customers' confidence in payment solutions. The extent of counterfeiting of money is low in Norway compared with other countries. Card fraud is on the increase, but is also low in international terms. At the same time, fraud involves major disadvantages for customers and banks. The banking sector is therefore making an effort to achieve more secure payment solutions. The introduction of chip cards is an example.

Payment services are expected to be available 24 hours a day, 7 days a week. Despite considerable changes in the payment systems during recent years, stability has been good. Ensuring stable IT operations will nevertheless pose a demanding challenge to participants in the years ahead.

Svein Gjedrem
20 May 2010

1. Payment services

1.1 Introduction and summary

Efficient payment services are essential to a well functioning economy. In an efficient payment system, means of payment and payment instruments are appropriate to the needs of the users, and payments can be made rapidly, securely and at low cost. When the prices and properties of the various payment instruments are known to the users, they will choose solutions that they find most suitable overall. An important condition for the efficient use of resources is that the prices charged to users reflect the cost of producing the services.

Banks supply the public and merchants with cash, but only to a small extent charge customers for deposit and withdrawal of cash. Were banks to introduce cost-based prices for cash services, users would be encouraged to choose payment solutions that are also beneficial in terms of the economy as a whole.

A statutory amendment in 2009 entitled merchants to charge customers for the use of payment cards that are expensive for the recipient and offer discounts when cheaper solutions are used. This may result in a generally less costly payment system.

Increased use of electronic invoices will reduce the cost of payment services. Recipients of payments can stimulate this process by rewarding the customers who use the less costly instruments.

Payment services are expected to be available without interruption 24 hours a day, seven days a week. Secure and stable IT operations are therefore a major challenge for participants in the payment system. Electronic payment services involve lengthy automated processes between payers and payees. This results in complex systems.

Payment fraud in Norway is limited, but the risk environment is constantly changing. Maintaining confidence in payment solutions is an important but demanding task for banks.

Norwegian enterprises engaged in cross-border trade should have access to payment solutions that are as efficient as those available to foreign competitors. Individuals would also benefit from better solutions for payments to other countries. It is positive that banks in Norway participate in the work on new, common European payment solutions.

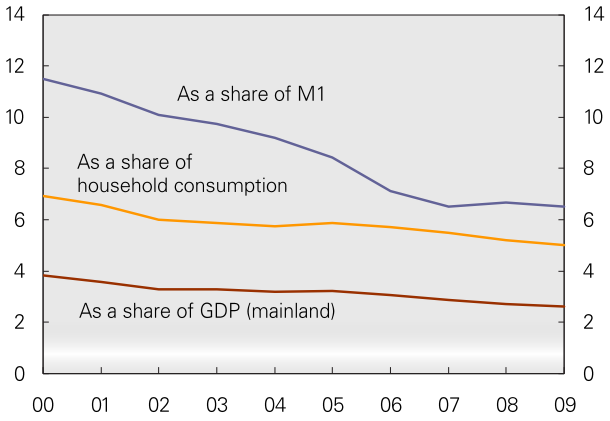
The payment system trends of recent years are presented in more detail below followed by a discussion of the costs associated with payment services and of how securely and swiftly payments are carried out. Finally, an account is given of the efforts to achieve more efficient payment services between European countries.

1.2 Use of payment instruments

Cash

The value of banknotes and coins in circulation constitutes an increasingly smaller share of the value of the means of payment available to the public (M1) (see Chart 1.1). Measured in relation to GDP and private consumption, the amount of cash in circulation has fallen. The value of cash in circulation as a share of means of payment is lower in Norway than in many other countries (see Chart 1.2).

Chart 1.1 Value of cash in circulation as a share of means of payment (M1), household consumption and mainland GDP. Per cent. 2000-2009



Source: Statistics Norway and Norges Bank

Bank customers can withdraw cash at bank branches, ATMs and point-of-sale terminals. Over the past ten years, the number of traditional bank branches has fallen. At the same time, the number of point-of-sale terminals, where customers can withdraw cash when they pay by card, has increased (see Chart 1.3). The number of ATMs has been fairly stable in recent years. A new trend is that banking services are made available in shops in the form of in-store bank and post office facilities. Approximately 2200 such facilities were in operation at the end of 2009.

Card payments

A steadily growing proportion of consumption in Norway is paid for by card (see Chart 1.4). In 2009, 1.2bn payments were made by card, an increase of 10% on the previous year. The number of card payments per capita averaged 246, making Norway a world leader in card usage (see Chart 1.5). Banks in Norway cooperate using a Norwegian card system, BankAxept (see box). BankAxept is the dominant card system in Norway. It has 80% of the market in terms of value and is used in 84% of payments by card. International card systems are increasing their share of the market (see Chart 1.6).

At end-2009, 11.6m payment cards had been issued in Norway, an increase of 10% on the previous year. Many cards have more than one payment function, i.e. a single card can provide access to more than one card system. For example, BankAxept and VISA are often combined in a single card. The total number of payment functions is thus 17.8m. In 2009, many cards featuring a magnetic stripe were replaced by cards with an embedded microchip (see Section 1.4).

At end-2009, there were 131 000 point-of-sale terminals at 103 000 different locations and the number has increased by approximately 10% each year over the past three years. As point-of-sale terminals become more widespread, users have increased freedom to choose the payment instrument they find most suitable.

Credit transfers and direct debits

A total of 350m online banking payments were made in 2009, an increase of 3% on the previous year. Direct debits (AvtaleGiro) increased by 12% compared with the previous year. The number of paper-based giros fell and these now account for only 6% of all credit transfers and direct

Means of payment and payment instruments

Means of payment are cash and deposit money. Cash consists of claims on Norges Bank. Deposit money consists of deposits in a bank account and claims on the bank concerned. Various payment instruments are used to gain access to cash and deposit money. Examples of payment instruments are payment cards and various giro services.

Payment cards

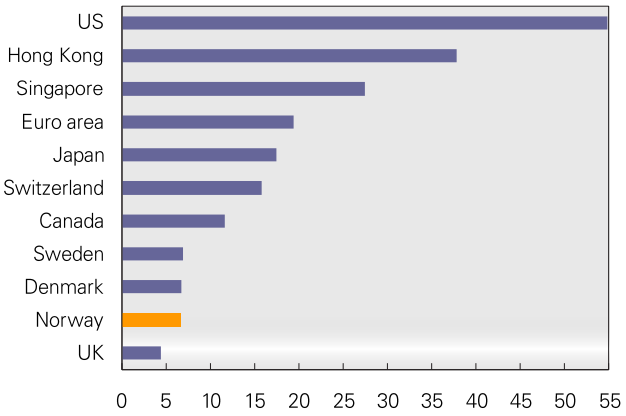
There are three main types of payment card:

Debit cards. The amount is drawn from the deposit account when the card is used. BankAxept is the most common debit card in Norway. The card company VISA has also issued many debit cards in Norway.

Charge cards. Each month, the user receives an invoice for purchases paid for using the card, and pays the whole amount when it falls due. American Express and Diners Club are examples of charge cards.

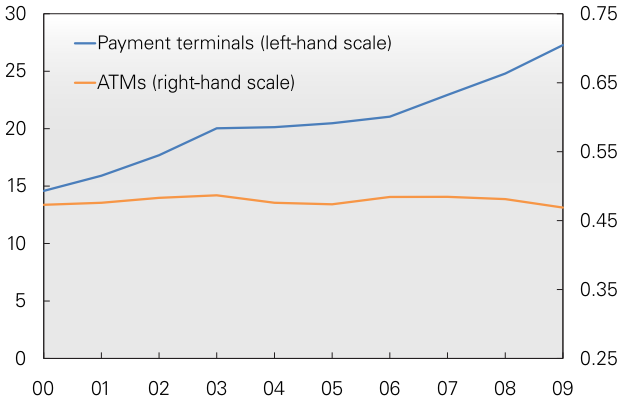
Credit cards. The user is given an advance credit limit and may choose to pay the whole or parts of the amount when it falls due. Many credit cards in Norway have been issued by the card companies MasterCard and VISA.

Chart 1.2 Cash as a share of means of payment (M1) in selected countries. Per cent. 2008



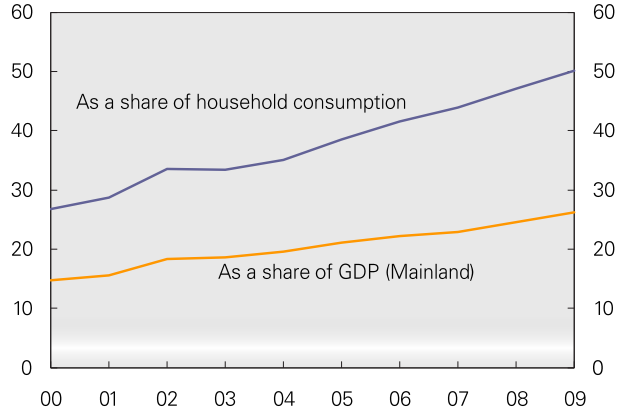
Sources: Norges Bank, ECB and BIS/CPSS Red Book

Chart 1.3 Number of point-of-sale terminals and number of ATMs. Per thousand inhabitants. 2000-2009



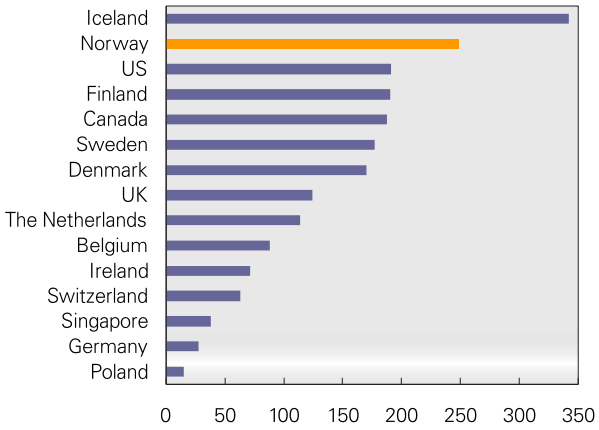
Source: Norges Bank

Chart 1.4 Value of goods purchases using payment cards. As a share of household consumption and mainland GDP. Per cent. 2000-2009



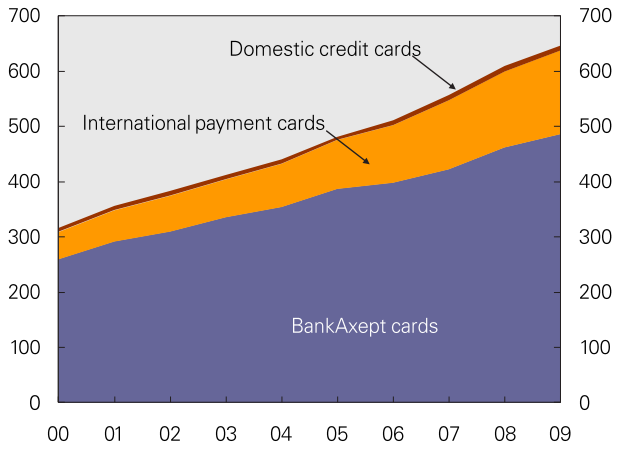
Source: Norges Bank

Chart 1.5 Number of card transactions per inhabitant. 2008



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

Chart 1.6 Use of payment cards. NOK billions. 2000-2009



Source: Norges Bank

debits. Chart 1.7 shows the use of payment services aimed at retail customers for payment of bills, etc. At the end of 2009, banks had concluded 5.3m agreements with customers for online banking services, an increase of 10% on the previous year.

Invoices can either be sent on paper via postal services or directly to the online bank as electronic invoices. The number of agreements for electronic invoicing increased sharply in 2009. Approximately 650 enterprises can now send electronic invoices to retail customers. Twenty-four million electronic invoices (e-invoices) were issued via the Norwegian Banks' Clearing and Payment Centre (BBS) in 2009 as against 18m the previous year. This amounted to approximately 10% of all online banking or direct debit payments from retail customers. Costs may be reduced if more invoices are issued electronically (see Section 1.3).

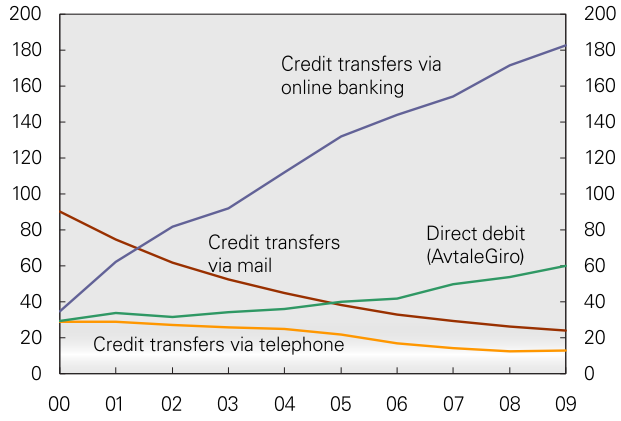
In order to make direct debit payments (AvtaleGiro), both the payee and the payer must have an agreement with their bank. At end-2009, 12 000 enterprises (7% more than the previous year) had concluded a total of almost 11m agreements (12% more than the previous year) with customers concerning such payments. AvtaleGiro can be combined with electronic invoicing.

Most banks in Norway provide mobile banking services using SMS messaging. The customer can for example transfer money between his own accounts or make account balance enquiries by sending an SMS message to the bank. Some banks also allow customers to use SMS messaging to transfer money to a predefined group of payees, transfer money to bank accounts from credit cards and pay bills by approving e-invoices received. Some banks also offer services whereby a mobile telephone is used to access online banking in order to pay bills, for example. In 2009, the Norwegian Savings Banks' Association estimated that approximately 230 000 users accessed online banks via mobile telephones. It was also estimated that approximately 380 000 customers used SMS services.[1] Banks aim to expand mobile banking services (see box on BankID).

1.3 Costs

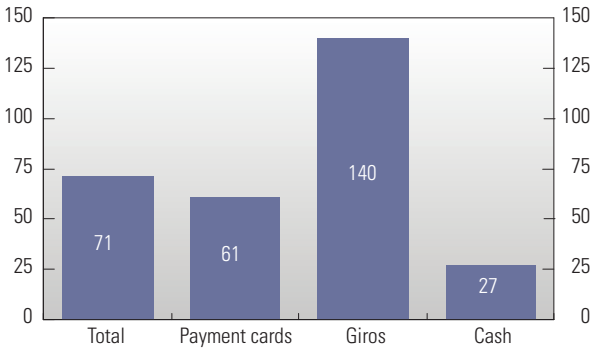
The cost of payment services in Norway is estimated at NOK 11bn or approximately 0.5% of GDP (Norges Bank 2009) (see Table 1). The cost has fallen over time.

Chart 1.7 Credit and direct debit transfers (retail customers). Millions of transactions. 2000-2009



Source: Norges Bank

Chart 1.8 Bank coverage of costs for various payment services. Income as per cent of costs. 2007.



Source: Norges Bank

[1] For more information on the use of mobile telephones for payment, see Norges Bank (2009).

Payment services that are costly to produce are used to a lesser extent in Norway than in other countries. Very few customers use cheques. Online banking has largely replaced paper-based giros and cash use is low. It is therefore likely that the cost of payment services in Norway is low in international terms.

The transition to electronic services has reduced costs for banks, payers and payees. The following section examines how costs have developed and indicates some measures for further cost reduction.

Cash

Banks' cash handling costs are high. Approximately half of the total cost of cash payment in the economy stems from banks. Secure transport and storage, counting, sorting, packing and shredding all require considerable manual labour. Banks attempt to reduce these costs (see box on page 10). However, fees charged to the public and to businesses for deposit and withdrawal of cash only cover a small part of the costs (see Chart 1.8).

Costs to the public of paying by cash include the time spent on paying and obtaining cash, the loss of interest

BankID

BankID is a system for electronic identification and signature on the Internet. Most people who have a BankID use it for logging onto and signing in their online banking service. Many also use BankID for online purchases and to access public services on the Internet. BankID is provided and issued by banks in Norway, and is based on a coordinated infrastructure developed by the banking sector through the Norwegian BankID Scheme under the auspices of Finance Norway (FNO). In February 2010, a total of 2.3m active personal BankID certificates (PersonBankID) were issued, and BankID was used approximately 850 000 times a day.

BankID for mobile phones is a type of BankID where the security features are stored in the SIM card in a mobile telephone. This solution was launched in March 2009 and is currently provided by two banks and one telecom carrier. BankID for mobile phones primarily enables online banking users to log onto online banking services without using a separate hardware security token as long as they have a mobile telephone available. It is intended to be used at a number of different websites and merchants outside the banking sector, as well as in other cases where there is a need for secure identification and signature. For example, customers will be able to use BankID for mobile for online purchases. It can also be used for online account payments and charging of mobile phone cash cards.

Table 1 Cost of payment services

	Cash	Payment cards	Giros	Total
Production costs (NOK billions), 2007				
Banks	1.7	1.8	1.5	5.0
Banks' subcontractors*	0.6*	1.6	0.3	2.5
Merchants	0.3	1.2	0	1.5
Households	0.9	0.8	0.5	2.2
Total economic costs	**3.5**	**5.4**	**2.3**	**11.2**

* Norges Bank's costs are included in subcontractors' costs in the amount of NOK 0.1bn.
Source: Norges Bank

Measures adopted by banks to reduce the cost of cash handling

Banks' cash handling costs can be reduced if cash remains longer in circulation outside banks. Over the past ten years, the number of point-of-sale terminals where customers can withdraw cash when they pay for goods or services by card, has increased.

A new trend is that more banking services are available in shops in the form of in-store bank and post office facilities. DnB NOR and Postbanken have established such facilities at approximately 2 200 locations (DnB NOR 2010). These offer simple banking services, such as deposit and withdrawal of cash. This will reduce the amount of cash that banks are responsible for handling.

In order to cut costs, banks also wish to coordinate transport and distribution of cash.

Income from payment services

Banks' income from payment services in 2009 totalled NOK 6.0bn, compared with NOK 5.2bn in 2007. Income from payment cards has increased in particular. In the case of other services, the changes are smaller.

The increase in income from cards is due to an increase in the number of cards issued, a greater number of transactions and an increase in credit card and charge card usage. A number of banks also report increased income from payment services for enterprises.

The information on banks' income from payment services has been obtained from the ORBOF database at Statistics Norway.

incurred by holding cash for payments and the fees charged by banks for deposit and withdrawal. Bank fees charged to the public for deposit or withdrawal of cash are low. Exceptions to this are some forms of cash withdrawal from ATMs (see Table 21 at end of report).

Merchants' (shops and other businesses) costs in connection with cash payments are mainly related to time consumption, storage and transport of cash. For merchants, the cost of each payment is similar for cash and the most efficient card payments. Bank fees charged to merchants for deposit or withdrawal of cash are low.

Banks subsidise the public and merchants' costs associated with the use of cash as fees do not correspond to costs. If banks introduce more cost-based prices for cash services, users will be encouraged to choose the payment solutions that are most favourable in terms of the economy in general. If banks turn to more cost-based pricing and increase the efficiency of cash operations, their cost absorption may improve without making cash less available.

Card payments

Banks charge for a number of card payment services. Total fees were estimated to cover approximately 60% of banks' costs in 2007. The figures give no indication of relative cost absorption for the different types of payment card.

The total cost to the public of paying by card (time consumption and fees) was estimated at approximately NOK 2 per payment in 2007. Since then, bank fees charged per card payment have fallen. A growing number of banks offer card payments free of charge to cardholders in loyalty schemes. For these cardholders, the average price of goods purchases using BankAxept is now less than NOK 0.1. The average price for cardholders who do not participate in a loyalty scheme is approximately NOK 1.7. There is no charge for goods purchases by credit card in Norway. In many cases, using credit cards earns bonuses or discounts for the cardholder.

Payment cards usually carry an annual fee. The average annual fee in Norway for BankAxept cards combined with the international debit card VISA is approximately NOK 240 for non-loyalty scheme cardholders and approximately NOK 190 for loyalty scheme cardholders. Annual card fees for loyalty scheme cardholders have increased by approximately 10% over the past year.

Banks' loyalty schemes are often designed in such a way that customers profit by using several financial services within the same group. This linking of services can make it difficult for customers to compare prices from bank to bank, and they may be less motivated to change bank. The service *Finansportalen.no* provides information on the conditions in loyalty schemes (see box).

The total costs to merchants associated with BankAxept and with international cards, for example VISA and MasterCard, are approximately equal, but a far higher number of their transactions involve BankAxept.

Merchants who accept payment cards pay a fee to their bank. In return for this, the merchant receives services such as terminal equipment, customer service, etc. and a guarantee of payment. Merchants must pay more to banks for each payment using international payment cards than for each payment using BankAxept cards. For each payment using BankAxept, the merchant is normally charged a fee of approximately NOK 0.12 to NOK 0.20, regardless of the size of the payment.[2] In addition to this, they are charged one-time fees for installation of terminals, monthly fees for settlement and maintenance, etc. and incur costs for the purchase or hire of terminals.

In 2007, the fees charged to merchants for payments made by international payment card were on average approximately 1.7% of the value of the sale (Kaardal, Ryste and Solberg (2007)). Fees charged to merchants have fallen gradually since the mid-1990s. The largest merchants, who pay the lowest fees per transaction, have a considerable effect on the averages. Most merchants (95%) paid a fee above the average. Recent figures from HSH

Prices in and outside customer loyalty schemes

- In order to participate in a customer loyalty scheme and receive discounts and other advantages, customers in many cases pay a fixed fee. In 2009, this fee was on average approximately NOK 60 per year.
- Customer loyalty schemes offer on average approximately 90% discount on prices for electronic giro payments. Only 10% discount is offered on payments using paper giros.
- Approximately 95% discount is offered on BankAxept debit card usage. No discount is offered on credit card usage, but there are discounts on the annual fees.
- At some banks, customers in customer loyalty schemes are charged more than other customers for cash withdrawals and cash giro payments over the counter.

For more details, see Table 21 at end of report.
Source: Finansportalen.no.

Finansportalen.no

When the prices and properties of the various payment instruments are known, users choose the solutions that all in all best serve their interests. This requires that they are well informed. Finansportalen.no makes such information more easily available. The portal is an independent information channel aimed at retail customers. It contains price comparisons for everyday banking services and loans, as well as information on insurance conditions and savings products. The service also contains information on loyalty scheme terms and conditions.

[2] From a review of the list prices in a selection of banks.

(Federation of Norwegian Commercial and Service Enterprises) show that fees have fallen again in the past few years. Fees vary substantially, from less than 1% to almost 4% of gross sales. In Norway and abroad, there has been considerable focus on how to strengthen competitiveness and reduce costs in the market for international payment cards (see box on page 13).

Merchants have been bound by rules that have prevented them from charging customers all or part of the cost they incur from international payment cards. As from 1 November 2009, such rules no longer apply (see box on page 14). Merchants may now charge their customers when they use expensive cards and give discounts when cheaper solutions are used. This may lead to lower costs for merchants and result in more cost effective payment services overall.

Since BankAxept accounts for a large share of the market and has low prices, merchants in Norway pay less in total for handling card transactions than in many other countries.

Credit transfers and direct debits

In 2007, total costs in Norway associated with credit transfers and direct debits amounted to approximately NOK 2.3bn (see Table 1). Businesses' billing costs are not included in this figure. The cost level varies considerably between different types of services. The cost of electronic services such as direct debit (AvtaleGiro), electronic invoices and online banking is considerably lower than for paper-based services. This is largely reflected in the prices banks charge retail and business customers (see Tables 21 and 22 at end of report). Both banks and users of bill payment services have reduced their costs by adopting electronic services.

As shown in Section 1.2, most bills are still issued on paper. Issuers of bills would be able to reduce the costs of printing, posting, packing and administrative routines by using electronic invoicing more. Electronic invoicing would save time for payers since invoices are available in the online bank pre-filled.

It has been estimated that the public sector can save an amount equivalent to a present value of approximately NOK 1.1bn over 10 years by switching to electronic invoicing (Report No. 36 (2008-2009) to the Storting). The same analysis shows that suppliers to the public sector could save an amount equivalent to a present value of approximately NOK 200m during the same period by using e-invoicing. The Norwegian Banks' Clearing and Payment Centre (BBS) estimates that invoices to the public sector amount to approximately 3% of the total number of business-to-business and business-to-government invoices. Increased use of electronic invoices, or e-invoices in combination with direct debit, would result in more automated handling of bills and a less costly payment system. Issuers of bills could promote e-invoicing by rewarding customers who choose to pay with the least expensive instruments.

1.4 Security

New electronic payment services involve lengthy automated processes between payers and payees. This increases complexity and involves a risk of errors that may delay or prevent completion of payments. At the same time, payment services are expected to be available at all times. Secure and stable IT operations have therefore become a major challenge for participants in the payment system.

Ensuring rightful access to means of payment and preventing counterfeiting and fraud has always been demanding. One example is counterfeiting of banknotes and coins. New payment solutions pose new challenges, also with regard to security.

Security problems are often presented as technical problems, but are just as often due to economic and organisational factors (Anderson et al 2008). Payment services are provided via networks. The risk for one participant is influenced by the other participants in the network, but the other participants may have little motivation for taking measures to reduce the risk of events that do not affect them. A participant's willingness and capacity to reduce payment fraud thus largely depends on the extent to which

Charges on international payment cards

Each time an international payment card, for example VISA or MasterCard, is used, an interchange fee is paid by the merchant's bank (acquiring bank) to the bank that issued the card to the customer (card-issuing bank). For the acquiring bank to make a profit on the transaction, it must charge a higher fee to the merchant (e.g. a shop) than it must pay itself to the issuing bank.

Card-issuing banks and acquiring banks agree the size of the interchange fee for each card type. This may conflict with the prohibition against agreements aimed at restricting competition laid down in section 10 of the Competition Act, as may the internal rules of the card enterprises, such as the "No Discrimination Rule" (NDR) and the "Honour All Cards Rule" (HACR). The Norwegian Competition Authority has therefore taken the initiative to examine the interchange fees and the internal rules of both VISA and MasterCard.

The NDR prevents merchants from charging a customer a fee according to the card the customer uses. The HACR requires the merchant to accept all cards from a card company (if the merchant has signed an agreement to accept cards from the company). Both rules reduce merchants' negotiating power, and may result in increased fees at the point of sale. Acquiring of card transactions is often offered and priced in a package with a number of other services from one or more card systems (known as "blending"). This may make the market less transparent and weaken competition.

On 19 December 2007, the European Commission decided that MasterCard's cross-border interchange fee within the EU/EEA area violated the EC Treaty (Article 81(1)), and that MasterCard had not provided sufficient evidence to be able to invoke the exemption provision (Article 81(3)). MasterCard was required to withdraw the cross-border interchange fee or change it to comply with EU competition rules. MasterCard appealed against the decision. In April 2009, MasterCard entered into a provisional settlement with the European Commission whereby MasterCard agreed to reduce its cross-border interchange fees and to amend its rules so as to increase transparency.[1] MasterCard has now repealed NDR and HACR and has implemented a rule whereby the acquirer is required to price individual services separately (without "blending"). MasterCard upheld its appeal.

In July 2002, the European Commission decided that VISA's cross-border interchange fee should be reduced and be based on a specific cost analysis. The interchange fees should also be made available to merchants.[2] The European Commission subsequently commissioned an investigation of VISA since it suspected that VISA did not comply with Article 81(1) of the EU Treaty. VISA has since set a new level for its cross-border interchange fees, and has decided to adapt the rules concerning pricing and packing of services in line with MasterCard's settlement of 1 April 2009.

The EU Payment Services Directive was incorporated in the Financial Contracts Act in November 2009 (see box on page 14). The new Section 39b prohibits the NDR by permitting merchants to charge fees to the customer for use of a specific payment instrument. MasterCard's repeal of the HACR and both card enterprises' amendment of the rule on packing and pricing of services will also have positive effects for transactions in Norway.

1 http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/09/143&format=HTML&aged=0&language=EN&guiLanguage=en.

2 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:c:2001:226:0021:0023:en:PDF

The Payment Services Directive

The EU Payment Services Directive (2007/64/EC) has been incorporated into the EEA Agreement by decision of the EEA Joint Committee No 117/2008 of 7 November 2008.

The part of the Directive applying to civil law was incorporated in Norwegian law from 1 November 2009. The provisions are laid down in the Financial Contracts Act. The Directive introduces some rules that differ from previous Norwegian law:

- The cardholder's liability in the event of misuse of a payment card was increased. Previously, the cardholder had to cover up to NOK 800 of the amount if the card was misused without any blame attaching to the user. This limit has been increased to NOK 1 200. In the event of gross negligence on the part of the cardholder, the limit has been increased from NOK 8 000 to NOK 12 000.

- Merchants are to be free to adjust the prices each customer has to pay to cover the cost to the merchant of form of payment chosen by the customer. The main rule in the Directive is that banks and card companies cannot prevent shops from giving discounts or making an additional charge depending on the type of payment solution used by the customer. As a national option, member countries may decide that the payment service provider shall be able to demand that merchants shall not be able to levy additional charges. In countries that adopt this national option, shops will still be able to give discounts. Shops will thus be able to pass on to customers the cost of payment solutions that are particularly expensive for the shop.

- Payments are to be transferred to the recipient's bank within one working day after the payment instruction is received by the bank. This requires that the payment instruction is received by the bank within a specific time limit. In the case of payments in currencies other than NOK and euro and of payments to countries outside the EEA area, longer transfer times may apply.

- When an account is credited, the bank shall pay interest on the credited amount from the date it is credited to the account. If the account is debited, the account holder shall receive interest on the debited amount up to and including the day before the withdrawal is made. In the case of payment transfers in NOK in Norway there is no change - the recipient's account will be credited the same day as the payer's account is debited.

- Banks were previously able to alter the terms of account agreements in the customer's disfavour in two areas: by reducing interest on deposits and increasing fees. Banks were then required to notify customers two weeks prior to making such amendments. In accordance with the new Act, banks may alter all of the terms of account agreements in the customer's disfavour, but must notify customers two months prior to implementing the amendments.

The Directive requires provision to be made for a new category of payment service providers: payment institutions. In spring 2010, the Storting will consider proposals for public law amendments concerning this. A new chapter of the Financial Institutions Act is proposed concerning payment institutions. This also provides for less detailed rules for payment institutions offering simpler services. In line with a national option in the directive, provisions have been made to place informal transfer systems (Hawala activities) under statutory regulation and control.

Finanstilsynet will deal with matters concerning authorisation of payment institutions and will be responsible for supervision. The Directive has also tightened the requirements regarding regulation to ensure competition between banks and payment institutions. Proposals for such statutory amendment have been incorporated in the Payment Systems Act, and the supervisory responsibility has been divided between Norges Bank and Finanstilsynet according to the same principles as otherwise in this Act.

For more on the Directive, see Grønvik (2010).

the participant bears the costs involved. When the participant best able to reduce fraud must also cover the cost of the fraud, the willingness to invest in measures to mitigate the risk is probably strengthened. This is taken into consideration when deciding customers' liability for compensation in connection with card fraud. The less a loss can be blamed on the customer, the larger the share of the loss that must be covered by the bank (see box on page 14).

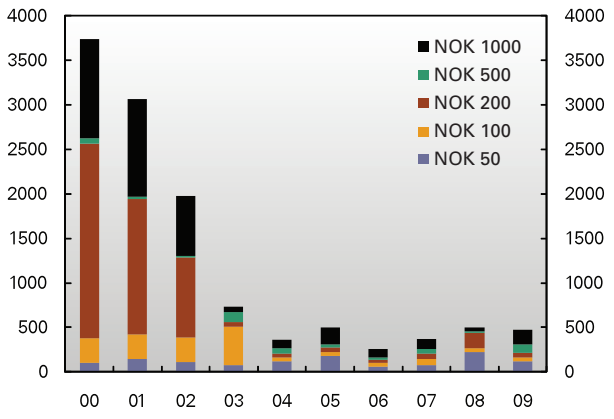
With better information concerning the extent of fraud and how it occurs, appropriate measures to reduce fraud are more likely to be implemented. Finanstilsynet (Financial Supervisory Authority of Norway) has recently tightened reporting requirements for financial institutions concerning incidents that occur in the payment system. The figures will be published.

Risk associated with the various payment services[3]

Cash

Cash is only suitable as a means of payment as long as users trust its authenticity. In 2009, 472 counterfeit Norwegian banknotes were recorded (see Chart 1.9).

Chart 1.9 Number of seized counterfeit notes. 2000-2009



Source: Norges Bank

During the period from 2002 to 2004, Norges Bank added new security features to the 50-, 100- and 200-krone notes. The extent of counterfeiting is low in Norway compared with many other countries. For every million banknotes in circulation, approximately four counterfeit Norwegian banknotes were found in 2009. The corresponding figure for Denmark is two, Sweden three, Australia seven, the euro countries 67 and the UK 293[4].

Payment cards

In 2009 over 21 000 cases of payment card fraud were recorded in Norway. This resulted in losses amounting to a total of NOK 215m, an increase of 8% on 2008 (FNO 2010). In 2009, payments using Norwegian payment cards totalled NOK 646bn. In other words, fraud amounts to approximately NOK 0.3 per NOK 1000 in payments. In the UK and Australia, corresponding figures were, respectively, GBP 1 per GBP 1000 and AUD 0.3 per AUD 1000.

A new type of payment card fraud emerged in Norway in 2009. Point-of-sale terminals were stolen from merchants, modified and then returned to the point of sale. With subsequent card usage in the terminal, the pin code was registered and the contents of the card's magnetic stripe copied. This information would then be used for fraudulent withdrawal or goods purchases. Finanstilsynet estimates that information on more than 10 000 cards issued in Norway was copied in this way. Losses were nevertheless only recorded in a few cases and attempts at fraudulent withdrawal or goods purchases primarily took place at terminals outside Norway.

As a consequence of these incidents, chip cards and chip-enabled terminals were introduced more rapidly. Chip cards now account for 97% of all BankAxept payment cards and over 92% of terminals are chip-enabled (FNO 2010). Chip cards reduce the risk of card information being copied. The financial industry and Finanstilsynet have recommended all users of payment cards to use chip cards when making payments.

[3] Much of the information concerning payment cards, online banking and new payment methods is from Finanstilsynet (2010).

[4] Estimate for 2008.

In 2009, information from Norwegian payment cards were illicitly obtained from card processing centres outside Norway. These data can be used to carry out fraudulent payments and cash withdrawals. When such events are detected, the issuing banks block the cards concerned, contact the customer and issue a new payment card. There has been a considerable increase in card data theft in many countries. Losses in Norway have been low, but inconvenience to the customers and banks concerned has been substantial.

Operating incidents can also give rise to problems and losses. For example, shops and other merchants will make fewer sales if customers do not have access to major payment services. On Saturday 24 October 2009, the BankAxept system was inoperative for 13 minutes. This affected all merchants and all cards using BankAxept during a very busy period of trading. Inadequate control of account balances has also given rise to problems in connection with card use in point-of-sale terminals and ATMs. Such events generally only affect certain types of cards, certain ATMs or certain merchants.

Online banking

In 2009, the number of incidents related to online banking services reported to Finanstilsynet was approximately the same as in the previous year. In Norway, online banking fraud losses are low. In 2009, Finance Norway (FNO) recorded losses of approximately NOK 11m. Turnover for online banking services totalled more than NOK 7 500bn. By comparison, losses related to paper-based giro transfers amounted to NOK 6.1m out of a total turnover of NOK 129bn.

Online banking service availability was somewhat higher in 2009 than in 2008. Problems owing to complex operating environments were an important factor behind disruptions in online banking services. For example, online banking payment services often share IT resources with other services. When problems arise in these services, payment services may also be affected. Access to online banking requires users to identify themselves and be authenticated before being able to make payments or carry out other operations. Maintaining secure connection between the bank and the customer throughout the payment session poses a considerable challenge. The bank is responsible for providing online banking services that ensure that communication between the bank and the customer is handled securely. For example, many banks require customers to re-authenticate their identity for each payment.

New payment methods

A number of new payment methods have been introduced in recent years. One example is payment via mobile telephones. The distribution of payment services can be more robust if more channels are made available. For example, in certain cases, a customer can use mobile banking if online banking is unavailable. Customer authentication can also be made more secure by combining use of mobile telephones and online banking. If an identity code is sent via the mobile telephone network, a fraudster must obtain access to data sent both via the mobile telephone network and the Internet. New payment methods may also give rise to new risks. The system may become more complex when payment services are provided via a number of channels. Setting up agreements between bank and customer is also challenging when different suppliers are responsible for providing different services to the same mobile telephone.

Contingency arrangements

Payment services are dependent on uninterrupted availability of IT systems, telecommunications and power supply. Disruptions in these systems may prevent access to payment services. In such cases, sound backup solutions are the first line of defence. If electronic payment methods fail, and the backup solutions also fail, the alternative is cash and various paper-based solutions. Every participant with responsibility for electronic payment services is also responsible for establishing good contingency solutions. Banks must therefore be able to obtain and process a sufficient number of paper-based forms for payment purposes in a crisis. If cash is used as a backup solution, each participant must include capacity and procedures for increased supply of cash and cash handling in its contingency plans.

Risk associated with outsourcing

Finanstilsynet has identified outsourcing in general, and relocation of ICT (Information and communication technology) activities out of Norway ("offshoring") in particular, as areas of increased operational risk (Finanstilsynet 2010). This is based both on the current situation and on plans for relocation of more ICT activities out of Norway.

Costs associated with ICT development and operations constitute a large element of a bank's total costs. ICT operation is characterised by economies of scale. In order to reduce costs, financial institutions have therefore established centralised ICT solutions and have outsourced much of this activity to data processing centres.

Efficient development and operation of ICT solutions is a major contributing factor to the cost efficiency of Norway's payment system. Large operating environments also play a positive role in maintaining competence and can be conducive to lower risk than multiple small environments.

Financial institutions in Norway are responsible for their own ICT solutions and are subject to Finanstilsynet's supervision. Finanstilsynet partly bases its work in this area on international recommendations. In cooperation with the International Organisation of Securities Commissions and the International Association of Insurance Supervisors, the Basel Committee on Banking Supervision (the Joint Forum) has submitted, among others, the following high-level principles for outsourcing in financial services (BIS 2005):

- A regulated entity seeking to outsource activities should have in place a comprehensive policy to guide the assessment of whether and how those activities can be appropriately outsourced. The board of directors or equivalent body retains responsibility for the outsourcing policy and related overall responsibility for activities undertaken under that policy.
- The regulated entity should establish a comprehensive outsourcing risk management programme to address the outsourced activities and the relationship with the service provider.
- The regulated entity should ensure that outsourcing arrangements neither diminish its ability to fulfil its obligations to customers and regulators, nor impede effective supervision by regulators.
- The regulated entity should conduct appropriate due diligence in selecting third-party service providers.
- Outsourcing relationships should be governed by written contracts that clearly describe all material aspects of the outsourcing arrangement, including the rights, responsibilities and expectations of all parties.
- The regulated entity and its service providers should establish and maintain contingency plans, including a plan for disaster recovery and periodic testing of backup facilities.
- The regulated entity should take appropriate steps to require that service providers protect confidential information of both the regulated entity and its clients from intentional or inadvertent disclosure to unauthorised persons.

Finanstilsynet indicates that it may be difficult to fully comply with these principles when outsourcing banks' ICT activities, particularly in the case of "offshoring". It is, for example, more difficult for financial service businesses to maintain control with increasing distance from operations. This may also make it more difficult for Finanstilsynet to supervise ICT activities. These problems can be reduced by means of increased cooperation between the supervisory authorities of different countries, increased use of internationally approved standards and more transparent dealings with all parties affected by the outsourcing.

Banks are obliged to allow customers to withdraw their deposits when they so request or when time deposits fall due. This obligation applies both in normal situations and in crises. In a situation where ATMs, point-of-sale terminals and other electronic payment methods are unavailable, it is likely that there would soon be considerable demand for cash from banks' branches. Contingency plans should be dimensioned on the basis that an increased supply of cash should be able to cover a large share of purchases normally paid for by card. Norges Bank must also have the capacity and contingency plans to meet an increased demand for cash from banks. The responsibility for regional and local distribution of cash in a contingency situation should conform to the ordinary distribution of responsibility between banks and Norges Bank.

Questions relating to alternative payment methods in crises have been discussed by the Contingency Committee for Financial Infrastructure (BFI 2010)[5]. A report from a subgroup proposing measures has been submitted to the Ministry of Finance.

1.5 Speed of payments

In Norway, ordinary payments between customers of different banks are included in the retail clearing in NICS (see box on page 19 and Section 2). Many payments between customers of the same bank are also included here. After the clearing is settled, customers' accounts are respectively debited and credited and payments are final.[6] Two such settlements are currently carried out each day in Norges Bank, at approximately 5.40am and at approximately 2.40pm.

Banks must deliver payments to NICS within fixed time limits in order to be included in the various clearings. Banks also set time limits for their customers. These time limits may vary somewhat from bank to bank, but are typically two to three hours prior to the NICS time limit. Following the settlement, transactions and information are forwarded from NICS to banks for updating of customers' accounts. The funds are then available to the payee. The minimum time for a transfer is thus approximately 4 hours from the time the payer delivers a payment instruction to the bank until the money is in the payee's account. The length of time a payment takes also depends on when the customer makes the payment. Whether a customer makes an online banking transaction at 5am or 9am, makes no difference to the payee. The payment is not carried out until after the settlement at 2.40pm. A payment transaction may thus take up to 20 hours. Processing times at weekends and on public holidays is longer.

Compared with other countries, the processing of payments in Norway is fast. Online banking payments can for example be completed the same day. In Denmark, such payments are received the day after they are entered. In the UK, online banking payments used to take two working days. In 2008, a solution was launched to enable such payments to be made in near real-time. An increasing proportion of online banking payments in the UK are now made using this service. In Sweden, online banking payments are received the same day as they are entered. From autumn 2010, a third daily clearing in NICS will be introduced, enabling payments delivered in the morning to be credited to payee accounts well before the end of the working day. The time of the final settlement of the day will also be deferred until around 4pm. Payments will thus to a greater extent be received by the payee on the same day as they are sent to the bank by the payer.

Payments made using BankAxept cards are handled differently. When the card is used, an amount corresponding to the payment is reserved on the payer's account. At the same time, the payee receives a guarantee of payment from his bank (see box on page 19). The payee can arrange with his bank how often receipts from card transactions are to be transferred to his account.

If the payer and the payee are customers of the same bank, some payments can be made without involving NICS. Payment transactions can then be completed more rapidly than outlined above.

[5] The Contingency Committee for Financial Infrastructure (BFI) is composed of representatives from the authorities and central participants in the financial sector. From 1 June 2010, the responsibility for the management and secretariat of the BFI will be transferred from Norges Bank to Finanstilsynet.

[6] With the exception of payments made by means of BankAxept.

What happens when you pay by BankAxept or giro?

What happens when you pay by BankAxept?

A number of controls are carried out when a BankAxept card is used in a payment terminal. Since BankAxept is a so-called "online card", information concerning the transaction amount and the PIN code is transmitted to the card-issuing bank for control and authorisation. The bank also checks that the card is valid, is not blocked, and that the agreed limits for use of the card have not been exceeded. The response from the bank (approved or not approved) is returned to the terminal. At the same time, the disposable amount on the cardholder's account is reduced by the transaction amount.

The merchant's bank provides financial services to the merchant when a customer pays by card. In this connection, the bank is referred to as the "acquirer". The acquirer guarantees that the merchant will receive the payment on the basis of the authorisation from the card-issuing bank. The merchant initiates the transaction to credit card payments to his account.

Many banks issue cards and function as acquiring banks in the BankAxept system. The banking sector has established cooperation whereby all requests for authorisation of card use and responses to these are sent through a common information distributor or "switch". On behalf of the acquiring banks, this sends the capital transactions to NICS (Norwegian Interbank Clearing System). NICS clears the transactions and sends the result for settlement, either at Norges Bank or at a private settlement bank (for more about clearing and settlement, see Section 2).

What happens when you pay by giro?

The person due to receive payment sends a giro to the person who is to pay. This may be a paper-based credit transfer sent by post or an electronic invoice (e-invoice). Banks provide different channels for payment of giros. Examples are online banking, telegiros, postal giros and over-the-counter payment at a bank branch.

When the payment is recorded by the bank, it is placed in a record of payments due. At fixed times, the transactions due to be carried out on the current date are sent by the bank to NICS for clearing. The result of the clearing is then sent to Norges Bank or to one of the private settlement banks for settlement. Immediately following settlement, NICS forwards the transactions to the recipient's bank for crediting of the recipient's account. In most cases, NICS also returns data to the payer's bank for debiting of the payer's account. This is an example of a payment where the payer initiates the credit transfer.

An alternative is that the payee delivers payment orders via his bank for debiting of the payer's account. This is often referred to as direct debits. The most common service of this type is AvtaleGiro. When a payment is made via AvtaleGiro, information is first sent to the payer concerning the imminent payments. When the payment is to be carried out, the payee's bank sends an electronic debit request to the payer's bank. If this request is approved by the payer's bank, the payee's bank sends the transaction to NICS for clearing. Settlement between banks and distribution of data from NICS to banks for debiting and crediting of the payer's and the payee's accounts respectively are then carried out in the same way as for credit transfers.

1.6 Cross-border payments

Cross-border payments are more expensive, take longer and involve greater security challenges than payments within a country. Each country has had its own payment services, its own infrastructure and its own payment regulations. When making payments to a recipient in the EEA area, a Norwegian bank customer must typically pay a fee of NOK 30 (see Tables 23 and 24 at end of report). Although these prices have fallen in recent years, they are far higher than the prices for corresponding payments in Norway. It may also take several days before a payment is available on the recipient's account.

Achieving the goal of a common internal European market requires that payments can be made efficiently and securely throughout the market. This requires coordination of the rights and obligations of payment system participants. This has been achieved in the EU Payment Services Directive (see box on page 14 and Grønvik (2010)). The Directive sets an upper limit for the length of time banks and payment service providers have to process payments between EEA member states. Until the end of 2011, this may take up to three days. Payments will subsequently be required to be carried out in a maximum of one day.

In Europe, the banking sector is working towards the establishment of a single European payment area. The project is referred to as SEPA (Single Euro Payments Area). The aim is that cross-border euro payments within the EU shall be carried out as simply and rapidly as, and cost no more than, payments within a country. The European banking sector has therefore developed common European payment instruments. Most large banks and infrastructure providers in Europe have now upgraded their systems to be able to process the new payment instruments. Some of these instruments require the legal basis for coordination provided by the Payment Services Directive.

It is important for Norwegian enterprises engaged in foreign trade to have access to equally favourable payment solutions as enterprises in other countries. Individuals who spend holidays abroad or trade with other countries will also benefit from the new solutions. It is therefore important that banks in Norway participate in the work on the common European payment solutions and that they offer these to their customers.

The first payments using SEPA instruments took place in January 2008 through a new service for credit transfers. Norwegian banks provide this service, most of them through their online banking services. A direct debit arrangement became operational in November 2009. Norwegian banks will provide this service from 2011/2012. It has been challenging to achieve a sufficiently large volume of transactions in the SEPA instruments. For example, in February 2010, only 7% of credit transfers in the euro area were made using SEPA solutions, while the remaining were made using domestic solutions (European Commission 2009).

The slow pace of implementation has aroused some concern in the EU. In March 2009, the European Central Bank (ECB) therefore issued a number of expectations to banks, payment institutions, companies and public administrations (ECB 2009). Banks are expected to ensure that the systems function according to intentions and that users are provided with solutions at least as good as the domestic solutions. Companies and public agencies were encouraged to use SEPA-based solutions. In the view of the ECB, public sector payees have a particular responsibility for ensuring that SEPA solutions are implemented. The ECB stresses that a "mini-SEPA" dealing only with cross-border payments is not appropriate. The Council of the European Union (2009) and the European Parliament (2010) has voiced similar concerns as the ECB. In the view of the Council, setting time limits for final implementation of SEPA instruments must be considered. From such date, national payment instruments and solutions that only process domestic euro payments must be phased out. The European Parliament requested the Commission to set a final and binding end-date for migration to SEPA which should be no later than 31 December 2012.

2. Interbank systems

2.1 Introduction

All transactions between banks are settled in clearing and settlement systems (see box on page 23). Examples of such transactions are foreign exchange and securities trades and ordinary payments by households. Every week, an amount corresponding approximately to Norway's annual GDP is settled in Norwegian interbank systems.

Interbank systems in Norway were robust during the financial market turbulence.[7] This is partly because these systems are designed to eliminate most of the credit risk associated with ordinary payments and payments relating to foreign exchange and securities trading. This helped to maintain activity in markets and interbank systems while confidence in counterparties was low.

Norges Bank ensured that the banking system on the whole had sufficient liquidity during the turbulence, partly through a temporary easing of collateral requirements for banks' access to borrowing from Norges Bank and the provision of fixed-rate loans (F-loans) with long maturities. Banks therefore had both ample access to borrowing from Norges Bank and held substantial deposits in Norges Bank (see Chart 2.1).

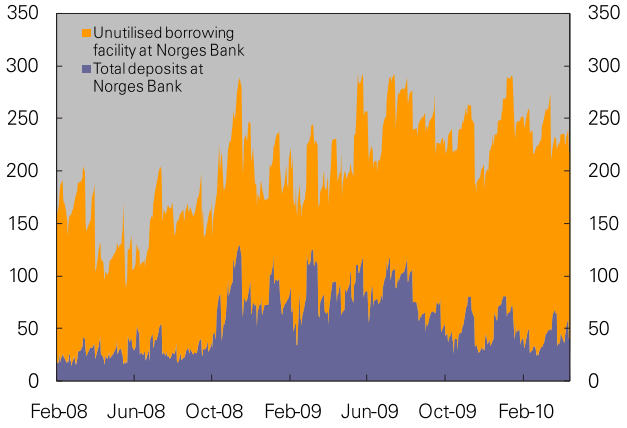
After money market conditions normalised, Norges Bank reversed the temporary easing of collateral requirements. It has also announced some tightening of the rules (see Section 2.3).

Liquidity is not evenly distributed among banks. However, most banks have a maximum need for liquidity in Norges Bank's settlement system (NBO) that is on average much lower than that available in deposits and through Norges Bank's lending facilities (see Chart 2.2).

Before the financial turbulence, banks submitted approximately 10% of payments to NBO after 2pm. From end-2008, the proportion has increased (see Chart 2.3), partly

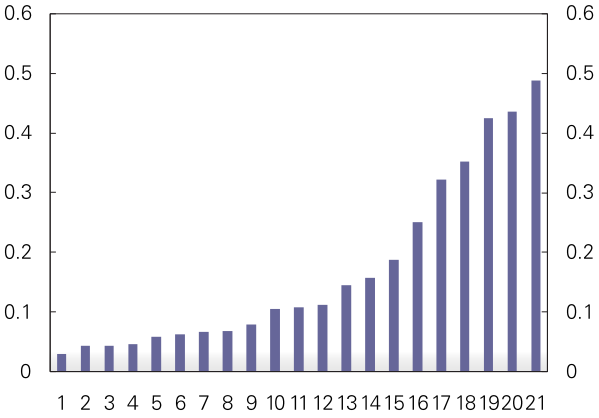
[7] See Norges Bank (2008 and 2009)

Chart 2.1 Banks' total deposits and unutilised borrowing facility at Norges Bank (end of day). NOK billions.1 Feb. 08 – 15 Apr. 10



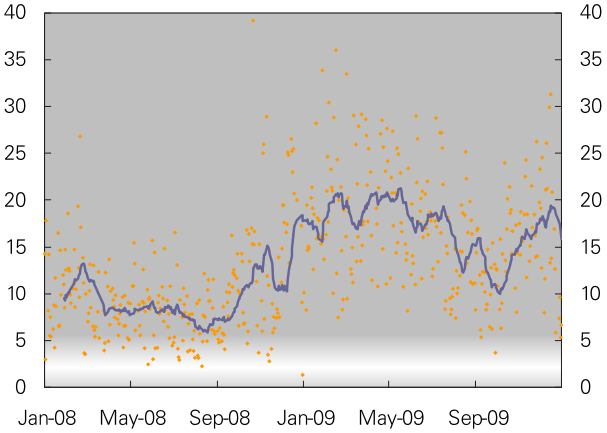
Source: Norges Bank

Chart 2.2 Liquidity ratio. Individual banks' maximum liquidity needs in NBO during a day divided by the bank's available liquidity in NBO. Normal order of transactions. Average 21 April 2009 – 15 April 2010 for the 21 banks with net settlement in NBO



Source: Norges Bank

Chart 2.3 Payments made after 14.00 hours in NBO. Per cent of value. Daily observations and 20-day moving average. 2008-2009



Source: Norges Bank

reflecting reduced bank credit lines for many customers when the financial turbulence unfolded. Some payments sent by banks on behalf of such customers are therefore postponed until the banks have received deposits that provide them with cover. Turnover still peaks in the middle of the day, but an increased share is concentrated between 2pm and 3pm (see Chart 2.4).

A major problem internationally during the financial turbulence was that neither the authorities nor market participants had an overview of the size of large financial institutions' exposures to financial derivatives. Activity in many markets fell to a very low level because market participants had little confidence in their counterparties. On the basis of this experience the establishment of new infrastructure is now being considered, including central counterparties for several types of financial instruments.

Section 2.2 provides an account of central events in Norway's key interbank systems during the past year and new initiatives and services from the foreign exchange settlement system CLS. Section 2.3 describes changes in Norges Bank's collateral requirements. Section 2.4 describes how central counterparties can reduce financial market participants' exposure to risk. Finally, we discuss the plans for TARGET2-Securities (TS2), a common European technological solution for settlement of securities trades.

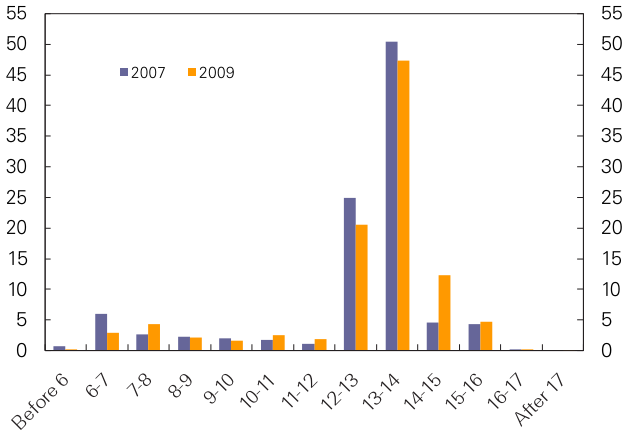
2.2 Key interbank systems in Norway

Norges Bank's Settlement system (NBO)

In 2009, an average of NOK 187bn was settled daily in NBO (see Chart 2.5). Gross transactions sent directly to NBO or via NICS (Norwegian Interbank Clearing System), accounted for the bulk of turnover. Gross transactions sent directly to NBO include payments to and from the foreign exchange settlement system CLS, while other large payments are normally submitted on a gross basis via NICS. Most of the turnover in NBO other than gross transactions involves net settlement of retail payments (for example card and giro payments) and securities trades.

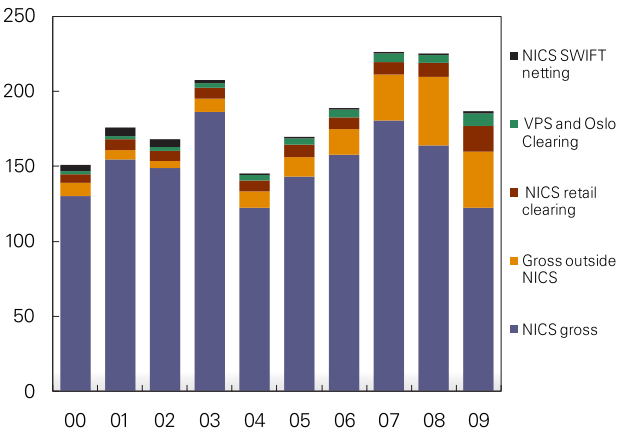
The turnover in NBO fell in 2009 compared with 2007 and 2008. This was mainly because turnover was abnormally high during the turbulence.

Chart 2.4 Value of transactions during time intervals. Share of daily total. 2007 and 2009



Source: Norges Bank

Chart 2.5 Daily turnover in NBO by settlement. NOK billions. 2000-2009



Source: Norges Bank

Norwegian interbank systems

An interbank system is based on common rules for clearing, settlement or transfer of money between credit institutions. Norges Bank is the ultimate settlement bank in Norway. The Bank also oversees major interbank systems and supervises systems authorised pursuant to the Payment Systems Act.

Large payments between banks (over NOK 25m) and specially marked transactions are settled individually at Norges Bank. This is referred to as gross settlement.

Smaller payments, for example card and giro payments, are cleared by netting a number of individual transactions, so that each bank ends up with either a debt or a claim against the other participant banks. The clearings are carried out by NICS (Norwegian Interbank Clearing System). The transactions received by NICS are submitted to NBO (Norges Bank's settlement system). In NBO, money is transferred between participant banks' accounts at Norges Bank so that banks' positions are settled. This is called net settlement.

Some large banks (21) participate directly in net settlements at Norges Bank, but most banks participate via a private settlement bank. The private settlement bank takes over the participating banks' positions and settles on their behalf in NBO. Banks' accounts at the settlement bank are then debited or credited. Banks that use a private settlement bank may also choose to send gross transactions directly to NBO.

Banks can cover their debt positions in the NBO settlement by drawing on deposits or by means of intraday loans (D-loans) against collateral from Norges Bank. Banks that participate via a private settlement bank can draw on credit facilities at this bank. DnB NOR is by far the largest private settlement bank.
All payments for trades in shares, certificates and bonds are settled in the system for securities settlement (VPO). The settlement commences when these trades are notified to the Norwegian Central Securities Depository (VPS), which calculates a position in securities and a position in cash (what the various participants owe or are owed in securities and cash). The securities are then settled in VPS while the associated cash positions are sent to NBO for settlement. The two systems are designed so that securities are only delivered versus payment, and vice versa, i.e. Delivery versus Payment (DVP).

Banks' cash positions from trade in derivatives via central counterparties are settled in Norges Bank or at a private settlement bank. The central counterparty clears the cash positions of the parties and the participant banks, and sends the result to Norges Bank or to the private settlement bank. The central counterparty then completes the trade with each of the parties. There are three central counterparties for derivatives trade in Norway: Oslo Clearing (equity instruments), Nord Pool Clearing (energy prices) and NOS Clearing (freight rates, salmon contracts and energy contracts). Cash positions from Oslo Clearing are settled via Norges Bank, while the positions from the two others are settled via private banks.

There are several reasons why the turnover in the settlement system is often high in times of turbulence. Borrowers must rely more heavily on short-term funding. Given unchanged funding needs, this results in increased turnover in settlement systems. Another reason is that currency hedges rise when exchange rate volatility increases. Large financial institutions use Value at Risk (VaR) models to set exposure limits in the foreign exchange market. VaR uses historical trends and fluctuations in the market to determine the probability that a loss will exceed a certain level. When there are major fluctuations in the market, banks must increase the frequency of hedging transactions to keep risk within a certain limit.

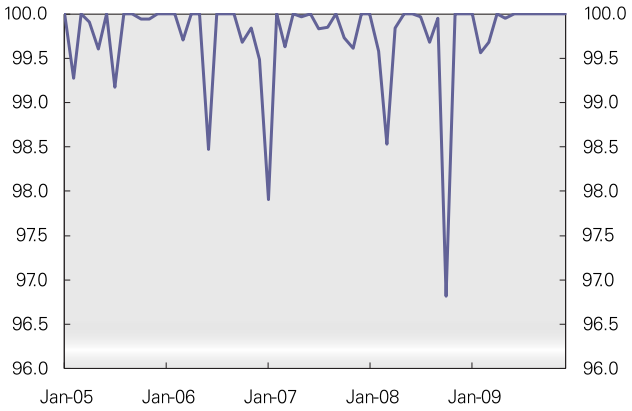
Moreover, as a result of the turbulence, some institutions with considerable foreign exchange exposures have disappeared from the market. This applies to a number of hedge funds and investment banks that were active in the Norwegian market.

Norges Bank implemented a new settlement system for NBO on 17 April 2009 (see box on page 26). The implementation was successful. Norges Bank and Norwegian banks have agreed that settlements shall mainly be carried out in the same way as in the previous system. However, the new system has more functions that banks may choose to implement.

There have been fewer disruptions in operations after the new system was implemented. With the exception of a brief interruption in May 2009, the system has functioned normally (see Chart 2.6).

Norges Bank assessed the previous NBO system in relation to international principles and deemed the risk in the system to be at a satisfactory level.[8] The new system will be assessed during 2010.

Chart 2.6 Availability in NBO during opening hours.[1] Monthly result. Per cent. 2005-2009



[1] 2005 –2006: Availability for IT operations for NBO by ErgoGroup
Source: Norges Bank

The Norwegian Interbank Clearing System (NICS)

Almost all payments are sent to NICS before settlement in NBO. These may either be submitted individually for settlement in NBO or cleared in NICS so that each bank receives either a debit or a credit for settlement at Norges Bank (see Chart 2.7).

NICS has been upgraded during the past three years (see box on page 26). The technological platform has been replaced, and NICS provides banks with a number of new functions. In the long term, NICS will also restructure its clearings. The new technological platform has resulted in greater system stability (see Chart 2.8). There were only 10 recorded disruptions in NICS in 2009. Most of these were minor disruptions.

New functions give banks better access to information concerning the payments that are settled. By means of a web-based interface, banks receive continuous information about the positions in relation to each of the other banks. Previously, information was only available concerning the collective position in relation to other banks, and the position was only updated after each clearing.

[8] See CPSS (2001). The assessments were published by Norges Bank (2007 and 2008). The CPSS is a forum for the central banks of the G10 countries. It is a standard stetting body for payment and securities settlement systems. It also serves as a forum for central banks to monitor and analyse developments in domestic payment, settlement and clearing systems as well as in cross-border and multicurrency settlement schemes. The CPSS has also published a comprehensive glossary of payment system terminology. For more information, see http://www.bis.org/cpss/index.htm

Another new feature is that banks can now follow each transaction from its receipt by the Norwegian Banks' Clearing and Payment Centre (BBS) until it is submitted to Norges Bank. This makes it easier for banks to detect errors and follow up deliveries from data processing centres to NICS.

After the restructuring, transactions will be submitted on a gross basis or cleared depending on their size. This is now decided by the format of the transaction. When large transactions are settled individually, there is less risk that a bank will delay a clearing because it has included payments for which there is no cover. This change will also result in more rapid settlement of a greater number of large payments. The changes are to be implemented by the end of 2010.

NICS is an important system in the Norwegian infrastructure, and is therefore subject to authorisation and supervision by Norges Bank. As part of this work, Norges Bank has assessed NICS in relation to international principles. The risk in the system is at a satisfactory level (see Norges Bank (2007 and 2008)). Norges Bank will reassess NICS in 2011.

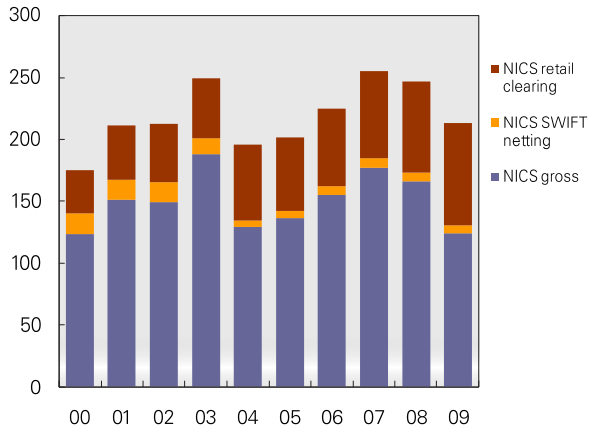
DnB NOR as a settlement bank

Most small and medium-sized banks use settlement services offered by private settlement banks. Private settlement banks do not require participants to have cover for their positions in the form of deposits or collateral. Settlement in NBO is thus carried out providing the private settlement bank has cover for its position in NBO (see box on page 23). In this way, settlement at private settlement banks helps to ensure stable payment settlements.

A risk for private settlement banks is that participant banks' positions may be large and threaten the settlement bank's liquidity. The settlement bank evaluates the creditworthiness of participants, but has no exposure limits in the settlement. The banking sector is working on enabling settlement banks to improve their follow-up of participant banks' exposures. Separate methods may also be implemented for handling very large individual payments. This may reduce risk for private settlement banks and their participant banks.

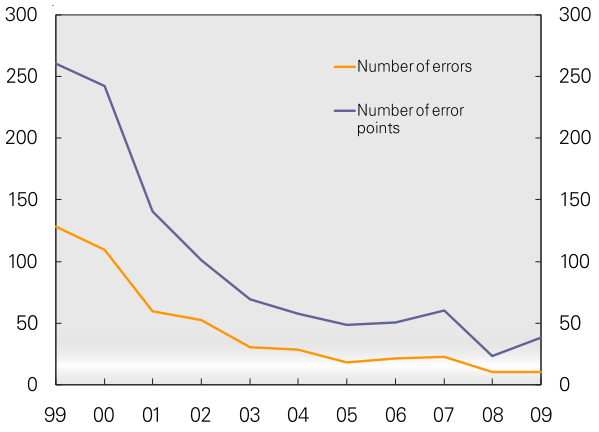
DnB NOR is the largest private settlement bank. Of 148 Norwegian banks, 106 settle their retail payments in DnB

Chart 2.7 Daily turnover in NICS. NOK billions. 2000-2009



Source: Norges Bank

Chart 2.8 Disruptions of NICS operations. Annual number of errors and error points.[1] 1999-2009



[1] The calculation of error points is based on a measure used by NICS Operations Office to indicate the seriousness of the individual disruption. The higher the number of error points, the more serious is the disruption.
Source : NICS Operations Office

Technological modernisation of interbank systems in Norway

A serious failure of NBO or NICS could stop most payments in Norway. It is therefore particularly important that these systems are stable and reliable.

In recent years, both NBO and NICS have implemented new IT solutions, with the aim of making the systems more secure and more flexible for the users. This has contributed to enhancing the stability of the Norwegian interbank system. The new solutions have been thoroughly tested, and have been implemented without serious incidents.

New NBO

In autumn 2004, Norges Bank started a project to establish a new settlement system. The existing system was nearing the end of its technological life, and its in-house development made Norges Bank dependent on key competence.

Organisation of the project

Norges Bank cooperated closely with banks and other participants in the financial infrastructure on planning and implementation of the new system. A reference group was established with representatives from banks, the banking associations, NICS and VPS. Matters needing more thorough investigation were considered in special subgroups composed of experts from the banking industry and from Norges Bank. Examples of such matters were the choice of information solutions and functions and the planning of the transition to the new system.

Testing

Testing of the system's functionality, performance, stability and operational security were key elements of the implementation project. The testing was divided into three main phases:

- The system's functions were tested three times. Each test period lasted one month. The errors found were corrected during the periods following each test period. The testing was intended, among other things, to ascertain whether the system satisfied the requirements regarding functionality, security and performance.
- During two periods, each of two weeks, tests were carried out to determine whether the new system functioned according to intentions in relation to the systems of the other participants in the settlement system.
- The complete cycle was tested for six weeks in order to survey the competence and procedures of all participants of the system.

Another important task of the project involved planning and preparing implementation of the new system. Detailed overviews of potential error situations were prepared as well as procedures for dealing with them. Project participants carried out several rehearsals of implementing the system.

New NICS

In recent years, BBS Infrastructure, which is NICS' operations centre, has worked on upgrading NICS. The clearing of multiple payment formats is to be transferred from an MVS platform (main frame) to a UNIX/Java platform (minicomputer). Handling of card and giro payments in NICS were transferred, respectively, in 2008 and 2009, while transfer of payments via SWIFT is planned for 2010. In addition to this, NICS has been adapted to the new NBO. In parallel with the transfer of production to a new technological platform, NICS has provided new and improved functions for banks.

Organisation of the project

The project has been carried out in close cooperation with banks. The banks' own organisations established an advisory group that has assisted in ensuring that solutions are adapted to the banks' needs. The advisory group also helped NICS to test the new solutions against banks' own systems.

Testing

Extensive testing has helped to ensure that the new solutions were operationally stable and that no disruptions occurred when the solutions were implemented. NICS mainly employs two types of test:

Parallel production. During the months prior to production start, the new solution is run side-by-side with normal production. Any deviations are automatically recorded so that they can be corrected before the new solution is implemented. In this way the new solution is tested for many types of event, such as change of month, large volumes, postponement of clearings and other types of deviation from normal operating schedules.

Automatic regression test. The new technological platform also supports several types of automation of tests that help to ensure higher quality. For example, automatic regression tests are run for each program modification. This makes it possible to ensure that such modifications do not result in errors in existing functions. Such tests will be useful in connection with future development and use of the new solutions.

While parallel production is used in connection with major restructuring, automatic regression tests are used in connection with minor modifications.

NOR (see Chart 2.9). These banks also engage in large individual transactions with DnB NOR, for example for liquidity management purposes. In 2009, the total monthly turnover in DnB NOR's settlement system varied between NOK 69bn and NOK 105bn (see Chart 2.10). The average daily turnover was NOK 3.9bn.

Banks using DnB NOR's settlement services have credit lines associated with execution of the settlements. The total amount for the participants in the settlement system came to over NOK 8.4bn in 2009. The corresponding figure for 2008 was NOK 7.0bn.

As in the case of NBO, turnover in DnB NOR's settlement system was somewhat lower in 2009 than in the previous two years, primarily owing to banks' reduced short-term funding in 2009. This was partly because Norges Bank supplied considerable liquidity to many banks in 2008 and the first part of 2009 in the form of F-loans. Banks using DnB NOR's settlement system have limited foreign exchange exposures. The decline in foreign exchange trading therefore had little impact on turnover in DnB NOR's system.

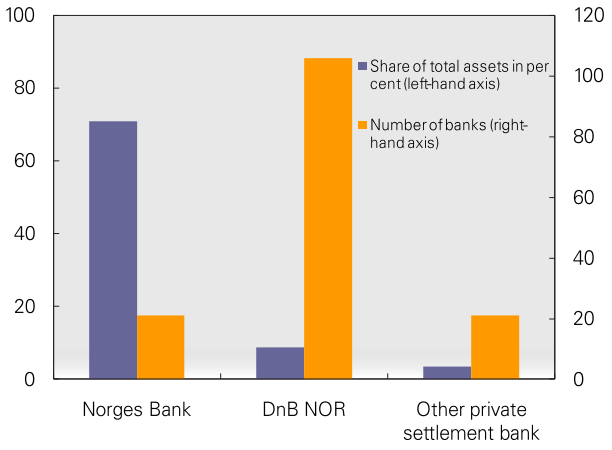
DnB NOR's settlement system was stable during 2009. In order to ensure the robustness of the system, DnB NOR has conducted several tests during the past year. DnB NOR has, for example, tested that the contingency solution can be activated at an alternative operations centre within agreed time limits.

DnB NOR is subject to requirements regarding authorisation and supervision pursuant to the Payment Systems Act. As part of the supervisory work, Norges Bank has assessed DnB NOR's system in relation to international principles, and deems that the risk in the system is at a satisfactory level (see Norges Bank (2007 and 2008)).

Securities settlement (VPO)

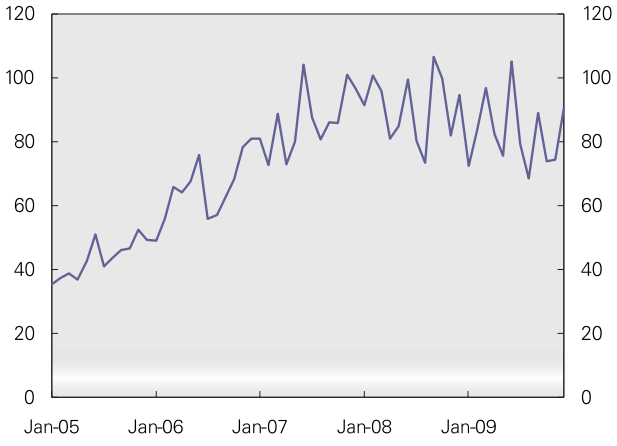
The Norwegian Central Securities Depository (VPS) clears payments for trades in shares, certificates and bonds. Trading on Oslo Børs accounts for the bulk of VPO transactions. The value of the turnover on Oslo Børs increased up to 2007, but has fallen in the past two years (see Chart 2.11). The turnover of equity instruments has fallen most.

Chart 2.9 Banks by settlement bank. Share of total assets and number of banks. 2009



Source: Norges Bank

Chart 2.10 Monthly turnover in DnB NOR's interbank system. NOK billions. 2005-2009



Source : DnB NOR

Liquidity risk from operational problems

If a bank experiences operational problems, clearing and settlement may be disrupted. The consequences depend on how active the bank is in the interbank system.

Most banks carry out transactions with few counterparties. Only a small number of banks have many counterparties. This is shown by studies of the payment systems of a number of countries, and is also true of the Norwegian payment system. Chart 1 shows the exchange of gross transactions between banks in NBO in October 2009. Each bank is illustrated as a dot in the chart. A line between two banks shows that they have exchanged at least one transaction during the period. The thicker the line is, the greater the value of the transactions is. Correspondingly, the size of the dot indicates the size of the bank's share of the transaction flow. In Chart 2, the 25 most active banks are ranked according to the average daily number of counterparties during the period.

The charts show that the Norwegian payment system has a small core of banks with many counterparties. This indicates that the system is robust to errors at a randomly chosen bank (many banks have few counterparties), but vulnerable to errors at a large bank. If a bank with many counterparties cannot pay, but only receive payments, it may accumulate considerable liquidity that cannot be further distributed.

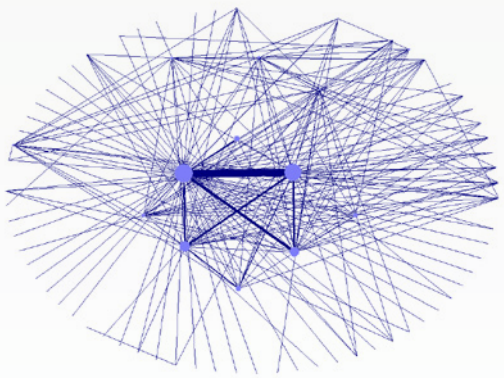
On a date selected at random (14 October 2009), such an error during the morning at one of the three banks with most counterparties would have reduced the other banks' deposits in Norges Bank by between 0.4% and 31% after 1 hour, between 2% and 39% after 5 hours and between 34% and 184%[1] by the end of the day. It is assumed that no other bank changed its payment pattern. If the problem lasted all day, the liquidity available to other banks (deposits plus borrowing facility at the central bank) would have been reduced by between 5% and 25%.

Such a liquidity shortfall could have resulted in settlement delays, with also other banks unable to meet their payment obligations. Settlement problems are alleviated by the banks' access to Norges Bank's overnight borrowing facility in order to effect their payments. However, it is very likely that problems at one of the largest banks would result in other banks being in a D-loan position at the end of the day.

Since an operational failure at one major bank may have considerable consequences for other banks, it is important that the largest banks have very robust systems for execution of payments. It is also important that the other banks have routines to prevent unexpected loss of liquidity in the event of an operational failure in a major counterparty bank. For example, a bank may set limits for how much it can pay out before receiving payments from the counterparty. In the Norwegian payment system such limits must be set by individual banks.

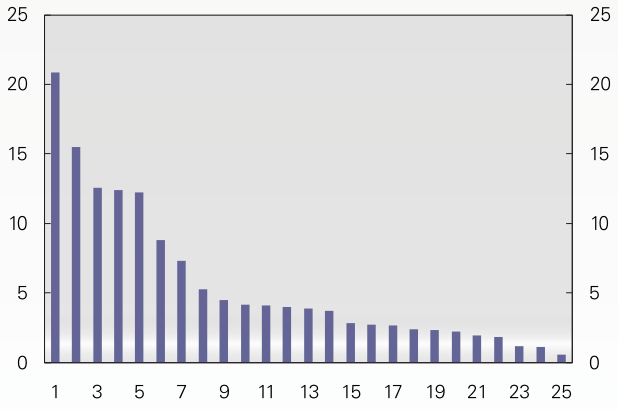
1 If a bank's deposit at Norges Bank is reduced by more than 100%, the bank moves into borrowing position.

Chart 1 Payment flows between banks in NBO, October 2009



Source: Norges Bank

Chart 2 Number of counterparties per bank[1]. Daily average, October 2009

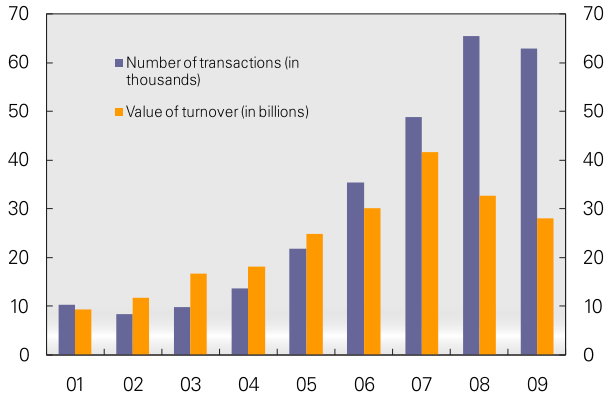


[1] Banks (1-25) on the horizontal axis and the number of counterparties on the vertical axis
Source : Norges Bank

The bankruptcy of Lehman Brothers in 2008 revealed that securities settlement rules were unclear. Opinions differed as to whether banks were obliged to deliver cash and securities for all trades notified on behalf of their customers. VPS has revised its rules, specifying that banks are obliged to provide both liquidity and securities for such trades. However, the rules have also been changed to facilitate direct participation of foreign investment firms (remote members) in VPO while outsourcing the practical business to a bank that is a participant in NBO. The remote member then needs a guarantee from the bank that it will provide liquidity for clearing transactions up to a given limit. The bank will have no responsibility for providing liquidity beyond this limit.

In 2007, the financial industry and Norges Bank established a working group with representatives from banks, brokers, VPS and Oslo Clearing with a view to enhancing the safety and efficiency of securities settlement. The group assessed the securities settlement in Norway in the light of the recommendations of the Committee on Payment and Settlement Systems (CPSS) and the International Organization of Securities Commissions (IOSCO) (see CPSS/IOSCO (2001). In spring 2009, the group proposed a number of changes, including the following:

Chart 2.11 Number of transactions (thousands) and value of turnover (NOK billions) on Oslo Børs.[1] Daily average. 2001-2009



[1] Equity instruments, bonds and certificates
Source : Oslo Børs

- The account of a bank that is a participant and/or liquidity bank in VPO for settlement can also be used even though the participant is placed under public administration. This will contribute to a greater degree of settlement of submitted transactions in such cases. Norges Bank and VPS are considering whether such a solution could be established.
- Introduction of real time gross settlement. This is an advantage for participants who need swift settlement of a trade. Gross settlement will be offered in addition to today's net settlement. The bulk of transactions will still be settled on a net basis.
- Introduction of a central counterparty for share trading. Oslo Clearing has established a central counterparty for share trading on Oslo Børs and Oslo Axess (see Section 2.4).

The foreign exchange settlement system CLS

Continuous Linked Settlement (CLS[9]) provides settlement of 17 currencies including NOK. The Federal Reserve supervises CLS and oversees the system in cooperation with the central banks for the other currencies settled in CLS.

Foreign exchange trading has traditionally been associated with considerable settlement risk for the parties involved. This is because foreign exchange trades were settled in two independent national payment systems, which involved unsecured exposures for the banks.

CLS links settlement systems of different countries and thus enables "payment versus payment" (PVP) in foreign exchange settlement. This means that no credit risk is associated with the settlement for parties to the trade. However, CLS provides no guarantee that the trades will be settled.

During the turbulence, it has been important for banks to be able to carry out foreign exchange trades without credit risk (see box). This is, for example, shown by the turnover in CLS, which was particularly high in 2007 and 2008

[9] For a more detailed account of CLS, see Andresen and Bakke (2004).

(see Chart 2.12). During the same period, many participants in the foreign exchange market linked up to CLS as a third party.[10] In December 2007, there were 2 195 third parties in CLS, while today there are more than 8 000. CLS estimates that it settles over 75% of all foreign exchange trades eligible for settlements in CLS.

Moreover, CLS plans to make provisions for settling more foreign exchange trades in the years ahead. It is working on increasing the number of currencies in the settlement. It is working on finding solutions for same-day settlement and encouraging more participants in the foreign exchange market to use the system.

CLS has several times extended its activities to include new services. In 2008, it began settling payments linked to credit derivatives, currency options and non deliverable forwards[11]. In the long term, it may also be appropriate for CLS to further extend its activities. For example, in autumn 2009, CLS announced that it would establish a trade repository providing information on the foreign exchange market.

New services from CLS may increase efficiency by automating more banking routines, reducing banks' operational risk, reducing costs per transaction and improving the authorities' overall view of the different markets. However, as CLS gains in importance for financial market participants, the consequences of an operational failure of the system will be more serious. A more complex system may also entail increased risk.

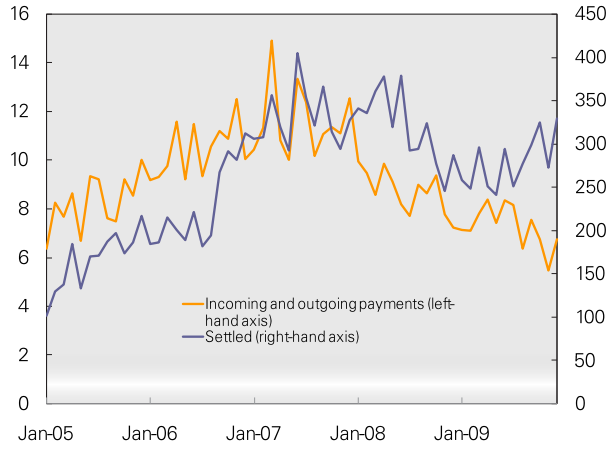
The risk associated with the increased scope of CLS's activities must be weighed against the advantages of a broader range of services. The Federal Reserve and the other central banks that oversee CLS, will therefore not approve provision of further types of service by CLS until a thorough examination has been conducted to establish whether provision of these services may have consequences for existing settlements in CLS.

2.3 Changes to Norges Bank's collateral requirements

Reversal of temporary easing

In autumn 2008, it became difficult for banks to borrow in money and capital markets. In order to extend banks' borrowing facility, Norges Bank amended the collateral requirements for banks' access to borrowing in the central

Chart 2.12 Value of daily NOK settlement in CLS and incoming and outgoing NOK payments. Monthly average. NOK billions. 2005-2009



Source: Norges Bank

[10] A third party is an institution that settles its foreign exchange trades in CLS through a settlement member.

[11] A forward contract that is settled in cash. Such contracts are settled against currencies that are not convertible or that are little traded.

The foreign exchange market during the turbulence

The foreign exchange market was less affected by the turbulence than many other markets. This may be explained by two aspects of the infrastructure. The first is the foreign exchange settlement system CLS. By settling in CLS, a bank avoids the risk of paying its part of the trade without the counterparty also doing so. This has been particularly important during a period when market participants were uncertain of counterparties' liquidity and financial strength. Secondly, the market risk associated with foreign exchange trades with long maturities is reduced by using "Credit Support Annexes" (CSA). Such agreements oblige the parties to provide margins if net exposure exceeds a certain limit.

bank. [12] This strengthened the liquidity of the settlement system.

During 2009, it became easier for banks to obtain funding. In October 2009, Norges Bank therefore reversed the temporary easing of the requirements.[13] Securities that were then already eligible as collateral will continue to apply until they fall due, at the latest 15 February 2012.

At the same time as the temporary easing was reversed, the requirements were also tightened in other ways.

Amendments to the rules

Under the current rules, Norwegian bank bonds may not exceed 35% of the value of a bank's total collateral (bank quota). From 1 December 2010, the basis for the bank quota will be extended to include bonds issued by foreign banks and other foreign and Norwegian financial institutions. From 15 February 2012, Norges Bank will no longer provide loans against securities in the bank quota. Insurance bonds[14], OMF covered bonds and other collateralised securities will still be eligible as collateral for borrowing.

Other amendments enter into force on 1 June 2010:

- Securities such as asset backed securities (ABSs) must have an AAA credit rating to be eligible as collateral in Norges Bank, and may not be secured by mortgage in commercial property. A borrower may not pledge more than 20% of the outstanding volume of an ABS as collateral.
- Collateralized Debt Obligations (CDOs) are not eligible as collateral.
- Securities with irrevocable unconditional government guarantees will mainly be regarded as government securities.

[12] For more information on temporary easing, see Norges Bank (2009).

[13] Norwegian covered bonds without a credit rating may however still be used as collateral, but subject to an additional haircut.

[14] Bonds issued by holding companies that mainly own insurance companies.

The turmoil in autumn 2008 showed that many securities may become illiquid in crises. In view of this, Norges Bank is in the process of establishing new haircut rates.

Most securities currently pledged as collateral to Norges Bank, but which will not be eligible under the new rules, will mature before the changes are implemented. As a result, banks will not have to sell these securities, but must ensure that new securities satisfy the eligibility requirements under the new rules.

Since summer 2007, Norwegian mortgage companies have issued OMF covered bonds for approximately NOK 500bn. There has therefore been a considerable increase in eligible collateral. In addition, banks' borrowing needs have declined, partly because petroleum taxes can now be paid in more frequent instalments. [15]

It is primarily the smallest banks that will have to provide new types of securities to maintain access to Norges Bank's borrowing facility. Securities from these banks accounted for the largest share of the collateral approved under the temporary rules. Many small banks opened accounts at Norges Bank in autumn 2008 in order to gain access to F-loans with long maturities. These loans mature at the same time as the rules that affect the small banks are tightened, and the stricter rules will thus have limited consequences for small banks. Some small banks will probably choose to reduce borrowing from Norges Bank after their long-term F-loans mature, while others will maintain their access to borrowing for contingency reasons. These banks may then pledge OMF covered bonds, bonds issued by manufacturing enterprises with a credit rating and government bonds as collateral to Norges Bank.

2.4 Central counterparties

Confidence that counterparties will honour their obligations is a prerequisite for every trade. During the financial crisis, markets without infrastructure that helped to reduce counterparty risk in the settlement were particularly

[15] See Fidjestøl (2007).

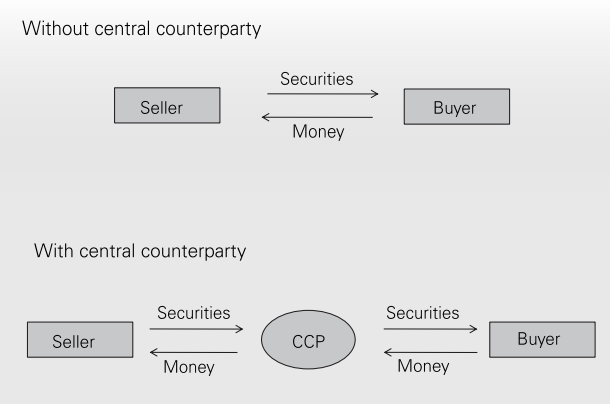
vulnerable to dysfunction. One example is the over-the-counter derivatives markets (OTC[16]). On the basis of this experience, market participants and government agencies are seeking to strengthen the infrastructure of some markets, for instance by increasing the use of central counterparties (CCPs).

A central counterparty is an institution that specialises in risk management during the process from the entry into a financial contract until its termination. Central counterparties are subject to regulation and supervision. They have traditionally been used by participants that trade in listed securities and derivatives, but are increasingly providing their services for over-the-counter transactions.

The central counterparty becomes a party to the transaction when the trade has been agreed, and becomes the buyer to every seller and seller to every buyer (see Chart 2.13). Market participants need only relate to one counterparty. They can therefore more easily control their counterparty risk.

A central counterparty nets the participants' positions, reducing the need for liquidity associated with their trades.

Chart 2.13 Trade with central counterparty



Source: Norges Bank

Moreover, the use of central counterparties often provides better information concerning the total risk associated with the market value of trades and the exposed participants. This benefits both market participants and the authorities.

Central counterparties are particularly useful in cases where confidence weakens between market participants such as banks and investment firms. During the financial crisis, trading seized up in many markets. This would probably have occurred to a lesser extent if central counterparties had been used. Central counterparties honoured their debt obligations during the financial crisis. During this period it was also a problem that neihter market participants nor government agencies had an overall view of the size of derivatives exposures of some financial institutions, particularly exposures related to credit derivatives.[17] The financial crisis therefore resulted in increased demand for services from central counterparties.

Central counterparty risk

When using central counterparties, a large share of the risk is concentrated on a single participant. It is therefore crucial that the central counterparty is financially sound and manages risk effectively. Both CPSS/IOSCO and European central banks in cooperation with the supervisory authorities CESR (Committee of European Securities Regulators) have defined standards for risk management of central counterparties.[18] The standards require that central counterparties have several lines of defence against loss from default.

In order to trade with a central counterparty, participants must impose a minimum requirement as to adequate financial resources and effective control systems. Participants must also furnish collateral (margin) that the central counterparty can draw on in the event of default. The margin requirement is calculated on the basis of losses that can be anticipated in connection with normal move-

[16] OTC stands for "Over-The-Counter", i.e. trades involving less standardised products than for example shares and bonds listed on an exchange.

[17] See Norges Bank (2009).

[18] See CPSS/IOSCO (2004) and ESCB/CESR (2009). CPSS/IOSCO (2004) is under evaluation.

ments in the market until the trade is settled. Margin requirements are updated daily or more frequently.

If the furnished margins cannot cover a loss, the central counterparty's capital is debited. A fund consisting of capital paid in by the participants (clearing fund) is the first to be debited.[19] If this is not sufficient, the equity capital of the central counterparty is debited.

Monetary claims between the participants and the central counterparty are settled via a bank. If the bank is no longer able to effect settlement, this may result in major problems for the financial system. International recommendations therefore impose stringent requirements for risk management in settlement banks.

Settlement at the central bank will always satisfy the requirements, and Norges Bank is able to effect monetary settlements for major central counterparties. In the case of settlement that cannot threaten financial stability, a private settlement bank may be appropriate.

Norwegian central counterparties

There are currently three central counterparties for derivatives settlement in Norway. Oslo Clearing is the central counterparty for equity derivatives, Nord Pool Clearing for energy derivatives and NOS Clearing for derivatives based on shipping freight rates, energy contracts or salmon export prices.

Oslo Børs has imposed the requirement that all trades in shares, certificates and exchange traded funds on Oslo Børs and Oslo Axess shall be settled via central counterparties.[20] Oslo Clearing will provide this service. A memorandum of understanding has also been concluded between Oslo Børs and LCH.Clearnet in London to allow this company to provide central counterparty services. NASDAQ OMX Group provides trade in the 25 most liquid Norwegian shares. European Multilateral Clearing Facility (EMCF), which is established in the Netherlands, will be the central counterparty for these trades.

[19] The part of a clearing fund held by a participant who has defaulted on his debts is normally debited first.

[20] Requirements regarding central counterparties are planned to be implemented in two phases. 4 June 2010: 5 selected shares in the OBX index. 18 June 2010: remaining shares, equity certificates and ETFs at Oslo Børs and shares at Oslo Axess.

The size of derivatives markets

Derivative markets are an important part of the financial system. The total underlying value of trade in derivatives reported by the market participants of the G10 countries and Switzerland[1] was over USD 677 000bn in June 2009. Almost 90% of this was in the form of OTC derivatives. In September the same year, the value of the global outstanding bond and short-term debt instruments was approximately USD 91 000bn. Interest rate, currency and credit derivatives accounted for 72%, 8% and 6% of OTC derivatives respectively. The remainder consisted of derivatives associated with, among other things, commodities and freight. At the start of the first half of 2009, approximately 45% of OTC interest rate derivatives were settled via central counterparties.[2]

Exposure as a result of trade in derivatives is far less than the underlying value. For example, in June 2009, the gross market value of OTC derivatives was only 4.2% of the underlying value.

1 See BIS (2010).

2. See IMF (2010).

Initiatives by international agencies

On 25 September 2009, the leaders of the G20 countries agreed that by the end of 2012, all standardised OTC derivatives should be traded on the stock exchange or at electronic merchants, and be settled via a central counterparty. They also agreed that OTC derivatives contracts should be reported to trade repositories, and that stricter capital requirements should be imposed on contracts not settled via a central counterparty.

On 20 October 2009, the European Commission announced that work was in hand on proposals for new legislation on derivatives. The main proposals are that suitable

Better infrastructure in international fixed income markets

Internationally, large financial institutions play a key role in the purchase and sale of fixed income securities. These institutions function as marketplaces by quoting bid and offer prices and through their role as counterparties in the trades. In order to obtain information on prices and available volumes, customers must take contact with each individual institution. Nor, in the European market, is there any subsequent full report of trades. The turbulence in the financial markets in 2008 revealed some weak aspects of this system. When the large financial institutions ran into difficulties, they stopped quoting binding prices, and the marketplace was therefore discontinued. This led to considerable uncertainty concerning prices, liquidity and available counterparties.

Many segments of the derivative markets function in the same way. Since the financial crisis, the G20 countries have proposed more transparent organisation of these markets in order to reduce the uncertainty concerning pricing and risk exposure for such instruments. Corresponding considerations also indicate the need for an improved organisation of fixed-income markets.

An infrastructure with a greater element of electronic trading platforms and settlement via a central counterparty may help to make international fixed-income markets less dependent on the large financial institutions, and thus more robust. At the same time, electronic trading platforms provide information on prices and available volumes to all participants in the market. In addition, information on actual trades will subsequently be more easily available. A more even distribution of information between market makers and investors may result in more efficient and liquid markets.

derivative contracts shall be settled via central counterparties and that established OTC derivative contracts shall be reported to trade repositories. The Commission also recommends the establishment of rules for trade repositories and central counterparties to ensure that they are robust, secure and effective.

On 2 December 2009, the European Council supported the Commission's proposals for new legislation, but at the same time, drew attention to potential difficulties in standardising contracts for certain types of trade. The Council also held the view that European agencies and central banks need to have access to the information in trade repositories, and that there was a need for a standard legal framework for regulation, supervision and oversight of these. The Council also stressed the need for further steps to address issues associated with risk and regulatory obstacles. A further goal is that investors shall be free to choose between central counterparties regardless of which marketplace they use. This involves a need for more work on access to and interoperability between central counterparties.

Norwegian banks and financial institutions are active in markets covered by the proposals of the G20 and the EU. New regulation may also have consequences for Norwegian marketplaces where there is currently no practice of settlement via central counterparties. Further work is required to identify the markets and products that would be appropriate for settlement via central counterparties. Liquid secondary markets and standardisation of instruments are key factors in ensuring efficient operation of central counterparties.

2.5 TARGET2-Securities

The European Central Bank (ECB) plans to develop a common IT platform for settlement of securities trades in Europe, known as TARGET2-Securities (T2S).[21] The ECB's goal is that T2S will make secure settlement of both domestic and cross-border securities trades simpler and cheaper.

Both the ECB and political agencies in the EU view T2S as an instrument for realising an internal securities market in Europe. Four central banks in the euro area are to develop and operate T2S on behalf of the euro system. T2S will only take over the settlement function for securities trades. The securities register must therefore continue to be located in the central securities depository (CSD) concerned. All functions of T2S will be available to all the users, but some of the functions will be optional. Furthermore, the CSDs may offer functionality additional to that available in T2S.

In most European countries, there are two steps involved in securities settlement. Recording of money is carried out via banks' accounts at the central bank while recording of rights to securities is carried out at CSDs. In order to reduce settlement risk, the two systems are normally synchronised so that securities are only delivered versus payment. Cross-border trade in securities is carried out without such synchronisation. T2S enables delivery versus payment (DVP) for cross-border trades. This ensures low risk also for such trades.

Participants and progress

The CSDs and central banks of all European countries are invited to take part in T2S with settlement of securities issued in euros and other European currencies. NOK, SEK, DKK and GBP are non-euro area currencies likely to be considered for participation.

A total of 29 private CSDs have signed a memorandum of understanding whereby they will transfer the technical operation of large parts of their activities to T2S. VPS (the Norwegian security depository) signed the memorandum of understanding in autumn 2009. Norges Bank has also informed the ECB that it is considering how securities trades in NOK can be settled in T2S. NOK can be included in T2S if there is demand for it in the Norwegian market and Norges Bank achieves an adequate agreement with the ECB.

The technical development of the system was originally planned for 2010/2011, testing for 2012/2013 and implementation in 2013/2014. It has now been announced that implementation must be postponed until September 2014 partly because it has taken longer than expected to prepare internal specifications for the T2S project. Major issues must be clarified before the ECB can establish formal agreements with CSDs and central banks. This applies, among other things, to questions concerning prices and governance structure in the operational phase.

The ECB Governing Council is the ultimate decision-making body with regard to T2S during development of the system. There is an ongoing discussion as to whether non-euro area central banks and the CSDs shall be allowed to be represented where decisions are made. Non-euro area countries currently have influence owing to their representation in an advisory group for T2S alongside euro area countries. Norway has one representative from banks, one from VPS and one from Norges Bank.

Oversight and supervision of T2S

Central banks and supervisory authorities in Europe will cooperate on monitoring and supervision of T2S. In 2001, CPSS and IOSCO published international recommendations for securities settlement. In 2009, ESCB and CESR published corresponding recommendations for securities settlement in Europe. These are based on the recommendations of CPSS/IOSCO, but give stricter recommendations on efficiency and security. T2S is designed to meet the recommendations of ESCB/CESR[22].

[21] For a further discussion of T2S, see Husevåg (2010).

[22] See ESCB/CESR (2009)

The main elements of T2S

T2S is contingent upon coordination of the securities settlement in central securities depositories (CSDs) and central banks in a number of countries. Banks will still have cash accounts at central banks and securities accounts at CSDs. T2S will link all accounts used for securities settlement at all participating central banks and CSDs. Settlement of securities accounts and central bank accounts will be carried out on the same technological platform. Each trade will involve transfer of money and securities in the same technical operation (so-called integrated model).

In T2S, delivery versus payment may occur between each account at a central bank and at a CSD. If the CSDs choose to open accounts with each other, it will be sufficient for a bank to have an account at one CSD in order to gain access to the entire European securities market. Banks that trade in multiple currencies must have at least one central bank account for each currency. The purchaser and seller are free to agree on the settlement currency.

Settlement of trades in T2S will be carried out individually (gross). T2S will settle the trades for which there is cover, and place the remainder in a queue. T2S will continuously check whether participants have obtained cover so that transactions in the queue can be settled. In the event of inadequate cover, T2S will moreover calculate the net value of the trades in order to determine whether banks have cover after the netting. Further, if a bank does not have cover for a transaction, it may be divided.

T2S will make provisions for automated loan collateral ("auto-collateralisation"). On the condition that a bank can furnish eligible collateral, T2S will automatically ensure that the bank obtains intraday loans from the appropriate central bank's financial account in T2S if the bank does not have sufficient cover. The collateral may be securities that are either already owned by the bank or that the bank is in process of taking over in the settlement. If a security that is pledged as collateral is sold, T2S will automatically examine whether it can be replaced. It shall furthermore be possible for banks to transfer money easily between T2S and the settlement systems of the various central banks.

Banks shall not have overnight deposits on the account in T2S.

T2S shall be open almost 24 hours a day. The transition to a new settlement day will not be at 12.00 midnight, but the previous evening. Most central banks currently offer settlement only during the day. Participation in T2S may thus result in changes in the opening hours of the payment systems, both within and outside central banks in most countries.

In Norway and some other countries, investors have their own accounts at CSDs, but they do not have accounts at central banks. In such countries, CSDs may choose whether to settle investor transactions in T2S or internally at the relevant CSD.

References

Anderson et al. (2008), "Security Economics and European Policy", Managing Information Risk and the Economics of Security, Johnson (ed.)

Andresen and Bakke (2004), "Continuous Linked Settlement – value for money", Economic Bulletin, No.1, 2004

BFI (2010), "Beredskapsutvalget for finansiell infrastruktur (BFI), Årsrapport 2009" [Contingency Committee for Financial Infrastructure, Annual Report 2009], March 2010

BIS (2005), "Outsourcing in Financial Services", The Joint Forum, February 2005

BIS (2010),"Semiannual OTC derivatives statistics at end- June 2009", Bank for International Settlements (BIS), 2010

Council of the European Union (2009), "Council Conclusions on SEPA", February 2009

CPSS (2001), "Core Principles for Systematically Important Payment Systems", Committee on Payment and Settlement System (CPSS), Bank for International Settlements (BIS), January 2001

CPSS/IOSCO (2001), "Recommendations for securities settlement systems", Committee on Payment and Settlement Systems (CPSS), Technical Committee of the International Organization of Securities Commissions (IOSCO), Bank for International Settlements (BIS), November 2001

CPSS/IOSCO (2004),"Recommendations for Central Counterparties", Committee on Payment and Settlement Systems (CPSS), Technical Committee of the International Organization of Securities Commissions (IOSCO), Bank for International Settlements (BIS), November 2004

Danmarks Nationalbank (2010), Report and Accounts 2009, Danmarks Nationalbank

DnB NOR (2010), "DnB NOR Annual Report 2009", March 2010

ECB (2009), "Eurosystem's SEPA Expectations", March 2009

ECB (2010), Press release, 11 January 2010

ESCB/CESR (2009), "Recommendations for securities settlements systems and recommendations for central counterparties in the European Union", European System of Central Banks (ESCB), Committee of European Securities Regulators (CESR), May 2009

European Commission (2009), "Second Annual Progress Report on the State of SEPA Migration in 2009", November 2009

European Parliament (2010), "European Parliament resolution of 10 March 2010 on the implementation of the Single Euro Payments Area (SEPA)", March 2010

Fidjestøl (2007), "The central bank's liquidity policy in an oil economy", Economic Bulletin, No. 4 2007

Finanstilsynet (2010)," Risiko- og sårbarhetsanalyse (ROS) 2009" [Risk and Vulnerability Analysis (RAV) 2009], March 2010

FNO (2010), "Moderat kortsvindel-økning i fjor" [Moderate increase in card fraud last year], press release, May 2010, Finance Norway

Grønvik (2010), "Ein europeisk marknad for betaling" [A European market for payments], Penger og Kreditt, No. 1, 2010, Norges Bank

Husevåg (2010), " TARGET2-Securities – billigere og sikrere verdipapiroppgjør i Europa?" [TARGET2-Securities – less costly and safer securities settlement in Europe?], Penger og Kreditt, No. 1, 2010, Norges Bank

IMF (2010), Global Financial Stability Report, April 2010

Kaardal, Ryste og Solberg (2007), "Ny vurdering av marknaden for internasjonale betalingskort i Noreg" [Updated assessment of the market for international payment cards in Norway], Kredittilsynet, Konkurransetilsynet and Norges Bank

Norges Bank (2007), "Annual Report on Payment Systems 2006", Norges Bank, May 2007

Norges Bank (2008), "Annual Report on Payment Systems 2007", Norges Bank. May 2008

Norges Bank (2009), "Annual Report on Payment Systems 2008", Norges Bank, May 2009

Reserve Bank of Australia (2010), "Reserve Bank of Australia Annual report 2009", Reserve Bank of Australia

St.meld. nr 36 (2008-2009) [Report No. 36 (2008-2009) to the Storting], "Det gode innkjøp", tilråding frå Fornyings- og administrasjonsdepartementet, May 2009

Sveriges riksbank (2010), "Annual Report 2009", Sveriges riksbank

UK Payments Administration (2010), "Financial Fraud Action UK", UK Payments Administration

Index of tables

General data

Table 1: General statistical data for Norway

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Population, 1 Jan. (million)	4.48	4.51	4.53	4.56	4.58	4.61	4.65	4.69	4.75	4.81
GDP, market value (NOK billions)	1 481	1 537	1 532	1 594	1 743	1 946	2 160	2 272	2 543	2 408
Mainland GDP, market value (NOK billions)	1 114	1 180	1 225	1 275	1 355	1 451	1 581	1 724	1 818	1 854
Total houshold consumption (NOK billions)	614	641	670	710	754	793	847	903	947	969
1 USD in NOK (annual average)	8.81	8.99	7.97	7.08	6.74	6.45	6.42	5.86	5.64	6.28
1 EUR in NOK (annual average)	8.11	8.05	7.51	8.00	8.37	8.01	8.05	8.02	8.22	8.73

Settlement media in Norway

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

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Money supply (M2)	**753 269**	**818 859**	**882 914**	**904 217**	**972 014**	**1 085 330**	**1 233 589**	**1 440 205**	**1 494 944**	**1 529 624**
Narrow money supply (M1)	**370 378**	**384 631**	**399 711**	**427 689**	**472 058**	**552 246**	**679 343**	**760 448**	**736 719**	**744 144**
Banknotes and coins	42 523	42 038	40 282	41 685	43 340	46 530	48 247	49 543	49 133	48 401
Deposits in current accounts	327 855	342 593	359 429	386 004	428 718	505 716	631 096	710 905	687 586	695 743
Other deposits	**326 350**	**370 171**	**409 704**	**407 457**	**423 185**	**435 483**	**473 108**	**559 351**	**657 065**	**693 886**
Certificates of deposit + units in money market funds	**56 541**	**64 057**	**73 499**	**69 071**	**76 771**	**97 601**	**81 138**	**120 406**	**101 160**	**91 594**

Tabell 3: Bank liquidity (NOK millions)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sight deposits, annual average	9 233	11 804	15 647	24 690	21 337	28 666	24 536	24 867	41 713	75 111
Lending (F-loans + D-loans), annual average	5 104	13 356	538	2 978	18 788	14 694	34 411	46 670	67 515	66 242

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

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total	**43 571**	**42 947**	**41 767**	**41 562**	**43 728**	**45 887**	**49 218**	**50 439**	**50 413**	**50 356**
Total banknotes	**40 119**	**39 271**	**37 811**	**37 429**	**39 429**	**41 382**	**44 523**	**45 858**	**45 838**	**45 704**
1000-krone	26 336	24 713	22 599	22 167	23 555	24 649	25 818	26 179	25 371	24 382
500-krone	6 107	6 921	7 626	7 732	8 278	9 060	10 374	11 213	11 882	12 722
200-krone	4 275	4 446	4 573	4 674	4 792	4 819	5 296	5 381	5 522	5 580
100-krone	2 684	2 464	2 270	2 091	2 012	2 021	2 119	2 121	2 083	2 029
50-krone	717	727	744	765	793	833	916	964	980	993
Total coins	**3 452**	**3 676**	**3 955**	**4 132**	**4 299**	**4 506**	**4 695**	**4 581**	**4 575**	**4 652**
20-krone	966	1 124	1 387	1 561	1 667	1 778	1 849	1 665	1 541	1 556
10-krone	1 087	1 111	1 085	1 051	1 049	1 076	1 145	1 214	1 259	1 276
5-krone	487	497	505	515	538	563	598	630	654	664
1-krone	617	641	666	686	718	753	799	845	884	912
0.5 krone	165	174	182	191	199	208	218	228	237	245
0.10 krone	130	130	130	129	128	128	86	:	:	:

Payments infrastructure

Table 5: Institutional infrastructure

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Number of banks			**153**	**152**	**148**	**149**	**147**	**149**	**149**	**148**
Savings banks			129	129	127	126	124	123	121	119
Commercial banks			16	15	13	14	15	16	18	18
Number of foreign bank branches in Norway			8	8	8	9	8	10	10	11
Electronic money institutions				4	5	5	4	3	3	3

Table 6: Number of agreements

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Online banking agreements	**933 335**	**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**
Online banking agreements – retail customers	:	:	:	:	:	3 221 839	3 683 843	4 089 644	4 471 351	4 865 720
Online banking agreements – corporate customers	:	:	:	:	:	60 954	325 478	348 493	369 893	433 782
Agreements to offer electronic invoicing (eFaktura) – corporate customers	:	:	:	:	:	:	330	460	532	648
Agreements on reciept of electronic invoicing (eFaktura) – retail customers	:	:	:	:	:	:	2 149 356	2 914 946	4 074 429	5 249 722
Company terminal giro agreements							27 904	28 707	29 127	32 983
Mail giro agreements	2 687 420	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
Direct debit agreements (Avtalegiro and Autogiro)	3 500 000	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
Avtalegiro – payees	6 041	6 473	6 883	7 194	7 905	8 761	9 554	10 373	11 135	11 945
Autogiro – payees	1 174	1 200	1 265	1 232	1 187	1 243	1 441	1 350	1 170	1 342

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

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Number of issued cards	**5 611**	**6 081**	**6 395**	**6 931**	**7 616**	**7 872**	**9 187**	**9 908**	**10 629**	**11 635**
Cards with a chip	:	:	:	:	:	:	1 235	2 540	3 848	6 500
Cards with a magnetic strip	:	:	:	:	:	:	7 953	7 368	6 781	5 136
Number of functions in issued cards	**9 056**	**10 075**	**10 575**	**11 322**	**12 298**	**12 449**	**14 169**	**15 335**	**16 772**	**17 829**
Debit functions	**7 419**	**7 991**	**8 212**	**8 600**	**9 326**	**9 107**	**10 138**	**10 519**	**11 899**	**11 789**
BankAxept	4 020	4 287	4 362	4 527	4 985	4 894	5 537	5 569	6 218	6 057
Payment cards issued by international card companies	3 399	3 704	3 850	4 073	4 341	4 214	4 601	4 949	5 681	5 732
Billing functions (payment cards issued by international card companies)	**416**	**445**	**438**	**451**	**470**	**451**	**478**	**522**	**535**	**534**
Credit functions	**1 221**	**1 638**	**1 925**	**2 271**	**2 502**	**2 891**	**3 553**	**4 294**	**4 338**	**5 506**
National credit cards	577	630	681	646	535	546	548	647	625	629
Payment cards issued by international card companies	644	1 008	1 244	1 624	1 967	2 345	3 005	3 647	3 713	4 877
Number of terminals that accept BankAxept cards	**67 445**	**73 832**	**82 294**	**93 456**	**94 386**	**96 591**	**100 021**	**109 821**	**119 953**	**133 332**
ATMs	**2 119**	**2 144**	**2 188**	**2 217**	**2 180**	**2 184**	**2 250**	**2 272**	**2 283**	**2 253**
Payment teminals (EFTPOS)	**65 326**	**71 688**	**80 106**	**91 239**	**92 206**	**94 407**	**97 771**	**107 549**	**117 670**	**131 079**
Owned by banks	55 208	59 184	65 374	66 207	68 197	66 786	74 303	75 460	77 804	80 500
Owned by others	10 118	12 504	14 732	25 032	24 009	27 621	23 468	32 089	39 866	50 579
Number of locations with payment terminals (EFTPOS) that accept BankAxept cards	**47 434**	**49 328**	**52 705**	**59 100**	**63 976**	**73 242**	**78 656**	**85 490**	**94 708**	**102 707**

Retail payment services

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

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total	**760.9**	**848.3**	**960.4**	**1 039.3**	**1 144.9**	**1 235.5**	**1 341.0**	**1 476.3**	**1 602.6**	**1722.8**
Debit and credit transfers (Giro)	**370.4**	**397.5**	**440.5**	**442.8**	**465.6**	**480.4**	**489.3**	**510.7**	**526.6**	**541.8**
Electronic[1]	221.0	268.1	331.3	348.9	384.3	411.8	437.4	462.3	483.9	503.5
Paper-based	149.3	129.3	109.3	93.9	81.3	68.6	51.9	48.4	42.7	38.3
Payment cards (goods purchases)	**386.5**	**448.0**	**517.8**	**595.0**	**678.1**	**754.2**	**851.0**	**965.1**	**1 075.6**	**1180.7**
Electronic	378.4	439.0	508.0	584.7	664.2	737.9	830.7	960.3	1 073.2	1178.9
Manual	8.2	9.0	9.8	10.3	13.9	16.3	20.4	4.8	2.4	1.9
Cheques	**4.0**	**2.9**	**2.0**	**1.5**	**1.2**	**0.8**	**0.7**	**0.5**	**0.4**	**0.3**

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

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

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total	**370.4**	**396.7**	**440.3**	**442.8**	**465.6**	**480.4**	**489.3**	**510.7**	**526.6**	**541.8**
Credit transfers[1]	**320.9**	**343.5**	**393.9**	**395.5**	**418.2**	**431.6**	**439.6**	**453.5**	**467.2**	**476.9**
Electronic	**192.1**	**234.5**	**299.9**	**314.8**	**348.5**	**371.9**	**395.6**	**412.7**	**430.5**	**443.6**
Company terminal giro	128.7	143.8	153.2	164.4	160.2	95.8	51.5	46.1	43.2	44.1
Online banking	34.6	62.0	81.4	101.5	138.4	227.8	293.6	318.8	340.4	349.7
Online banking solutions for retail customers	34.6	62.0	:	91.6	112.0	131.8	144.0	154.2	171.2	182.3
Online banking solutions for corporate customers	-	-	:	9.9	26.4	96.0	149.6	164.6	169.2	167.4
Telephone giros	28.8	28.7	26.8	25.5	24.8	21.8	16.9	13.9	12.2	12.7
Miscellaneous other electronic credit transfers	:	:	38.5	23.4	25.1	26.4	33.6	33.8	34.7	37.1
Paper-based	**128.9**	**109.1**	**94.0**	**80.6**	**69.7**	**59.8**	**44.0**	**40.8**	**36.7**	**33.3**
Company terminal giros and online banking as money order	6.3	5.6	4.9	4.2	3.0	2.6	1.0	1.7	1.3	1.2
Mail giros	90.2	74.4	61.7	52.1	44.6	38.0	32.6	29.0	26.1	23.8
Giros delivered at the counter – account debits	32.4	28.3	27.1	24.4	22.0	19.2	10.4	10.1	9.3	8.3
Miscellaneous giros registered in banks[2]	0.0	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Direct debits	**29.0**	**33.6**	**31.3**	**34.1**	**35.8**	**39.9**	**41.8**	**49.6**	**53.4**	**59.9**
Giros delivered at the counter – cash payments	**20.4**	**19.5**	**15.0**	**13.2**	**11.6**	**8.9**	**7.8**	**7.6**	**6.0**	**5.0**

[1] Figures for credit tranfers do not include miscellaneous credit transfers, including standing orders in the period 2000 – 2001.
[2] Miscellaneous giros registered in banks includes both cash payments and account debits.

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

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total use of Norwegian cards (in Norway and abroad)	**496.8**	**563.6**	**631.1**	**704.7**	**786.6**	**862.2**	**957.6**	**1 070.7**	**1 182.0**	**1 281.1**
Goods purchases	**386.5**	**448.0**	**517.8**	**595.0**	**678.1**	**754.5**	**851.0**	**965.1**	**1 075.6**	**1 180.7**
Goods purchases without cashback	283.8	323.8	385.2	456.8	533.6	618.5	769.1	887.4	1 002.4	1 109.7
Goods purchases with cashback	102.7	124.2	132.6	138.2	144.6	135.9	81.9	77.7	73.2	71.1
Casw withdrawals without goods purchases	**110.3**	**115.7**	**113.3**	**109.7**	**108.5**	**107.8**	**106.6**	**105.6**	**106.4**	**100.4**
Use of Norwegian cards abroad	**22.6**	**26.2**	**31.5**	**36.2**	**38.3**	**38.8**	**50.6**	**70.4**	**74.4**	**83.1**
Goods purchases	16.3	19.0	23.2	27.0	29.8	30.6	42.3	58.2	60.3	69.2
Cash withdrawals	6.3	7.1	8.3	9.2	8.6	8.3	8.3	12.2	14.1	13.8
Use of Norwegian cards by function										
Debit functions	**473.7**	**536.5**	**601.4**	**669.5**	**743.6**	**809.2**	**904.2**	**1 001.3**	**1 102.8**	**1 192.8**
BankAxept	441.1	496.7	548.3	615.3	681.7	745.7	817.4	896.1	987.7	1 065.7
Payment cards issued by international card companies	32.6	39.8	53.1	54.2	61.9	63.5	86.8	105.3	115.1	127.1
Billing functions (Payment cards issued by international card companies)	**13.9**	**14.8**	**13.9**	**14.8**	**16.3**	**19.1**	**17.7**	**20.5**	**22.6**	**21.6**
Credit functions	**9.2**	**12.3**	**15.7**	**20.4**	**26.7**	**33.9**	**35.7**	**48.8**	**56.5**	**66.6**
National credit cards	2.9	3.6	4.5	5.3	5.7	6.1	6.5	7.8	8.8	8.0
Payment cards issued by international card companies	6.3	8.8	11.2	15.1	21.0	27.8	29.2	40.9	47.8	58.6
Use of foreign cards in Norway	**7.1**	**7.8**	**8.6**	**9.5**	**10.8**	**13.6**	**14.3**	**14.3**	**16.3**	**17.5**
Goods purchases	6.0	6.5	7.3	8.1	9.3	12.4	12.6	11.7	13.5	15.1
Cash withdrawals	1.2	1.3	1.4	1.4	1.5	1.3	1.7	2.7	2.8	2.4

[1] Figuers for the years 2000 – 2001 do not include the use of international payment cards and national credit cards in terminals owned by entities other than banks and oil companies. Figures for the use of international payment cards in payment terminals also includes the use of cards on the internet.

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

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Use of Norwegian terminals	**514.8**	**578.3**	**633.3**	**709.6**	**780.9**	**857.3**	**941.1**	**1035.1**	**1146.5**	**1 241.8**
Cash withdrawals from ATMs	106.1	109.0	103.5	102.1	99.3	98.7	99.8	95.9	94.9	88.8
Goods purchases in EFTPOS terminals that accept BankAxept	391.6	446.1	500.8	575.6	638.5	718.1	797.6	868.1	969.0	1 056.0
Of which BankAxept goods purchases with cashback	102.7	124.2	132.6	138.2	144.6	135.9	81.9	77.7	73.2	71.1
Goods purchases in other Norwegian payment terminals	17.1	23.2	29.0	31.9	43.1	40.5	43.7	71.0	82.6	97.0
Use of Norwegian cards in Norwegian terminals	**471.4**	**534.1**	**591.2**	**665.8**	**743.5**	**819.0**	**902.5**	**1 000.3**	**1 108.9**	**1 200.0**
Cash withdrawals from ATMs	**103.3**	**107.7**	**102.1**	**100.3**	**99.2**	**98.8**	**98.1**	**93.3**	**92.1**	**86.4**
BankAxept	98.6	102.0	96.6	95.6	93.2	91.7	88.7	86.7	84.5	78.9
National credit cards	1.0	1.2	1.0	1.4	1.1	0.8	1.1	0.9	0.8	0.7
Cards issued by international card companies	3.8	4.5	4.5	3.3	4.9	6.3	8.4	5.6	6.8	6.8
Goods purchases in payment terminals	**368.1**	**426.4**	**489.0**	**565.5**	**644.3**	**720.2**	**804.4**	**907.0**	**1 016.8**	**1 113.6**
BankAxept – goods purchases (including purchases with cashback) in EFTPOS terminals	342.5	394.7	451.7	519.7	588.4	654.1	728.7	809.4	903.1	986.8
National credit cards – goods purchases	1.3	2.0	3.0	3.8	4.1	4.8	5.3	6.7	7.8	7.1
Cards issued by international card companies – goods purchases	24.2	29.7	34.4	41.9	51.8	61.3	70.4	90.9	105.9	119.7

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

	2006	2007	2008	2009
Transfers from Norway	**5 422.5**	**6 298.6**	**6 521.9**	**6 785.1**
SWIFT	5 171.1	5 861.4	5 919.3	6 094.9
Foreign currency cheques	97.0	133.1	159.2	170.1
Other transfers (MoneyGram, Western Union, etc.)	154.5	304.1	443.5	520.1
Transfers to Norway	**2 784.8**	**2 791.7**	**2 872.9**	**2 912.3**
SWIFT	2 773.7	2 743.5	2 822.7	2 863.2
Foreign currency cheques	3.2	36.7	34.8	28.7
Other transfers (MoneyGram, Western Union, etc.)	7.9	11.5	15.5	20.4

Table 12: Use of payment services (NOK millions)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total	**5 894.4**	**5 951.8**	**6 225.1**	**6 934.7**	**8 963.5**	**8 247.9**	**9 301.6**	**10 865.9**	**11 714.6**	**11 568.6**
Debit and credit transfers (Giro)	**5 627.7**	**5 695.1**	**5 943.5**	**6 653.3**	**8 656.0**	**7 909.5**	**8 904.8**	**10 428.8**	**11 229.7**	**11 042.2**
Electronic[1]	4 720.0	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
Paper-based	907.7	539.0	486.3	411.3	372.4	247.4	224.7	216.5	186.8	173.8
Payment cards (goods purchases)	**164.3**	**184.2**	**224.9**	**236.6**	**265.0**	**305.5**	**381.0**	**424.3**	**473.5**	**514.4**
Electronic	156.2	175.4	215.4	227.9	254.1	289.5	365.1	418.3	470.0	511.8
Manual	8.1	8.9	9.5	8.7	10.9	16.0	15.9	6.0	3.5	2.5
Cheques	**102.4**	**72.5**	**56.6**	**44.9**	**42.5**	**32.9**	**15.8**	**12.9**	**11.3**	**12.0**

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

Table 13: Debit and credit tranfers (giros) (NOK millions)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total	**5 627.7**	**5 695.1**	**5 943.5**	**6 653.3**	**8 656.0**	**7 909.5**	**8 904.8**	**10 428.8**	**11 229.7**	**11 042.2**
Credit transfers[1]	**5 314.2**	**5 410.5**	**5 714.4**	**6 431.5**	**8 396.5**	**7 612.6**	**8 624.8**	**10 149.4**	**10 991.7**	**10 809.9**
Electronic	**4 517.9**	**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**
Company terminal giro	4 372.2	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
Online banking	93.3	197.3	409.1	650.7	1 351.8	4 272.8	5 772.4	6 496.3	8 239.4	7 567.7
Online banking solutions for retail customers	93.3	197.3	:	332.6	436.4	517.3	585.4	650.1	775.6	776.8
Online banking solutions for corporate customers	-	-	:	318.1	915.4	3 755.6	5 187.0	5 846.2	7 463.8	6 790.9
Telephone giros	52.5	57.6	54.3	51.0	48.4	43.8	37.5	31.0	29.7	32.8
Miscellaneous other electronic credit transfers	:	:	166.3	150.4	151.5	155.9	352.6	543.8	487.6	504.5
Paper-based	**796.2**	**439.3**	**406.4**	**354.1**	**291.4**	**163.5**	**168.2**	**156.9**	**132.1**	**128.7**
Company terminal giros and online banking as money order	44.0	42.0	36.8	33.4	27.2	4.5	11.7	15.7	10.5	13.8
Mail giros	527.7	195.5	175.7	184.6	161.1	103.0	81.7	72.0	62.6	53.1
Giros delivered at the counter – account debits	224.6	189.0	190.0	136.1	103.1	55.9	74.7	69.2	59.0	61.8
Miscellaneous giros registered in banks[2]	0.0	12.9	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Direct debits	**202.0**	**184.8**	**149.2**	**164.6**	**178.5**	**212.9**	**223.5**	**219.7**	**183.4**	**187.3**
Giros delivered at the counter – cash payments	**111.5**	**99.7**	**79.8**	**57.2**	**81.0**	**83.9**	**56.5**	**59.7**	**54.7**	**45.1**

[1] Figures for credit tranfers do not include miscellaneous credit transfers, including standing orders in the period 2000- 2001.
[2] Miscellaneous giros registered in banks includes both cash payments and account debits.

Table 14a: Payment cards: Use of cards (NOK billions)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total use of Norwegian cards (in Norway and abroad)[1]	**315.9**	**355.7**	**382.9**	**411.6**	**440.0**	**480.8**	**510.8**	**556.6**	**609.0**	**645.9**
Goods purchases	164.3	184.2	224.9	236.6	265.0	305.4	352.2	396.1	445.8	486.5
Cashback from EFTPOS terminals	36.9	44.7	47.5	48.3	48.3	49.4	28.8	28.1	27.8	27.8
Cash withdrawals without goods purchases	114.6	126.8	110.4	126.6	126.7	126.0	129.8	132.4	135.5	131.5
Use of Norwegian cards abroad	**23.3**	**25.6**	**29.3**	**33.6**	**34.4**	**35.5**	**40.5**	**58.5**	**62.2**	**67.8**
Goods purchases	13.8	15.0	17.4	20.4	21.8	23.5	28.5	40.7	41.9	46.6
Cash withdrawals	9.5	10.6	11.9	13.3	12.6	12.0	12.0	17.8	20.3	21.2
Use of Norwegian cards by function										
Debit functions	**283.4**	**320.0**	**344.5**	**371.0**	**393.5**	**429.1**	**447.3**	**483.7**	**525.9**	**556.3**
BankAxept	259.8	291.8	309.7	335.7	354.1	386.9	398.0	422.2	461.7	485.7
Payment cards issued by international card companies	23.6	28.2	34.8	35.4	39.4	42.2	49.2	61.5	64.3	70.6
Billing functions (Payment cards issued by international card companies)	**17.2**	**18.1**	**17.5**	**16.9**	**17.8**	**19.7**	**19.0**	**22.9**	**25.1**	**23.0**
Credit functions	**15.4**	**17.6**	**20.8**	**23.8**	**28.8**	**32.0**	**44.5**	**50.0**	**58.0**	**66.6**
National credit cards	6.7	7.4	8.3	7.5	7.6	5.3	8.7	9.5	10.1	8.9
Payment cards issued by international card companies	8.7	10.3	12.5	16.2	21.1	26.7	35.8	40.4	47.9	57.7
Use of foreign cards in Norway	**5.4**	**5.8**	**5.9**	**6.9**	**8.5**	**9.6**	**10.2**	**10.0**	**12.2**	**12.6**
Goods purchases	3.9	4.1	4.2	5.0	6.3	7.7	7.9	6.3	8.4	9.3
Cash withdrawals	1.5	1.7	1.7	1.9	2.2	1.8	2.4	3.7	3.8	3.3

[1] Figuers for the years 2000 – 2001 do not include the use of international payment cards and national credit cards in terminals owned by entities other than banks and oil companies. Figures for the use of international payment cards in payment terminals also includes the use of cards on the internet.

Table 14b: Payment cards: Use of payment terminals (NOK billions)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Use of Norwegian terminals	**:**	**:**	**367.0**	**395.1**	**419.7**	**454.8**	**483.1**	**515.4**	**570.6**	**603.9**
Cash withdrawals from ATMs	106.3	115.8	114.0	115.0	113.1	112.0	119.2	117.8	118.5	113.2
Goods purchases in EFTPOS terminals that accept BankAxept cards	:	:	183.5	211.2	231.2	272.6	305.8	319.7	365.6	394.8
Cashback with goods purchases with BankAxept cards	36.9	44.7	47.5	48.3	48.3	49.4	28.8	28.1	27.8	27.8
Goods purchases at other Norwegian payment terminals	15.9	18.3	21.9	20.5	27.1	20.8	29.3	49.8	58.8	68.1
Use of Norwegian cards in Norwegian terminals	**288.1**	**324.9**	**346.0**	**375.6**	**401.0**	**439.2**	**462.5**	**495.0**	**545.2**	**577.4**
Cash withdrawals from ATMs	**103.6**	**114.3**	**112.4**	**112.6**	**112.8**	**112.1**	**116.9**	**114.1**	**114.8**	**109.9**
BankAxept	97.9	107.0	105.0	105.7	104.2	101.9	103.1	103.2	102.8	98.4
National credit cards	1.4	1.4	1.4	2.1	1.7	1.3	1.6	1.4	1.4	1.2
Cards issued by international card companies	4.4	5.9	6.0	4.9	7.0	8.9	12.2	9.5	10.6	10.3
Cashback with goods purchases with BankAxept cards	**36.9**	**44.7**	**47.5**	**48.3**	**48.3**	**49.4**	**28.8**	**28.1**	**27.8**	**27.8**
Good purchases in payment terminals	**147.5**	**165.8**	**186.0**	**214.6**	**239.8**	**277.7**	**316.8**	**352.8**	**402.6**	**439.7**
BankAxept – goods purchases in EFTPOS terminals	125.0	140.1	157.2	181.6	201.7	235.4	266.1	290.9	331.0	359.4
National credit cards – goods purchases	2.7	3.2	4.3	5.0	5.1	5.7	5.9	6.8	7.7	6.7
Cards issued by international card companies – goods purchases	19.8	22.5	24.6	28.0	33.1	36.6	44.8	55.1	63.9	73.6

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

	2006	2007	2008	2009
Transfers from Norway	**:**	**5 791 416**	**6 503 064**	**6 549 533**
SWIFT	:	5 153 212	5 818 297	5 544 906
Foreign currency cheques	766 232	636 924	683 043	1 002 642
Other transfers (MoneyGram, Western Union, etc.)	620	1 280	1 724	1 985
Transfers to Norway	**:**	**4 047 008**	**4 578 060**	**4 377 504**
SWIFT	:	4 039 783	4 574 037	4 376 451
Foreign currency cheques	5 184	7 150	3 928	910
Other transfers (MoneyGram, Western Union, etc.)	43	75	95	144

Interbank

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

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
NICS										
SWIFT Gross/RTGS	282	303	300	596	611	532	547	593	605[1]	524
SWIFT Net	4 344	4 719	4 925	5 155	4 480	4 744	5 301	5 908	6 390	6 269
NICS Retail (million)	3.0	3.4	3.7	4.0	4.3	4.7	5.1	5.5	5.9	6.5
NBO										
NICS SWIFT RTGS								593	539[1]	521
RTGS Gross transactions outside of NICS								199	272	158

[1] Difference between NICS and NBO figures due to different method for counting transactions through back-up solution

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

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
NICS	**175.1**	**211.4**	**212.5**	**248.7**	**195.7**	**200.8**	**224.8**	**254.5**	**246.6**	**213.1**
SWIFT Gross/RTGS[1]	123.0	151.2	149.5	187.8	129.4	135.5	155.3	176.8	165.9	124.1
SWIFT Net	16.9	16.1	16.2	12.6	5.2	5.7	6.7	7.6	7.3	6.1
NICS Retail	35.1	44.1	46.8	48.3	61.1	59.6	62.8	70.1	73.4	82.9
NBO	**144.0**	**172.1**	**169.2**	**206.8**	**152.3**	**160.8**	**185.2**	**226.1**	**224.9**	**186.6**
NICS SWIFT RTGS[1]	123.2	150.7	149.5	187.7	128.9	135.5	155.3	180.2	163.9	122.0
RTGS Gross transactions outside of NICS	9.3	6.9	4.8	7.2	11.1	12.1	16.1	31.1	45.6	37.7
NICS SWIFT Net	3.8	5.3	5.5	2.1	1.0	0.9	1.0	1.2	1.1	1.6
NICS Retail	5.5	6.8	6.9	6.7	7.6	8.5	8.1	8.1	9.2	17.1
VPO and Oslo Clearing	2.2	2.3	2.5	3.1	3.7	3.8	4.7	5.5	5.1	8.2
VPO							4.4	5.1	4.9	8.0
Oslo Clearing							0.3	0.4	0.3	0.2

[1] Difference between NICS and NBO figures due to different method for counting transactions through back-up solution

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

	2006	2007	2008	2009
Norges Bank's settlement system (NBO): Banks with account in Norges Bank	145	142	143	140
Norges Bank's settlement system (NBO): Banks with retail net settlement in Norges Bank	23	23	22	21
DnB NOR	104	103	103	106
Sparebank 1 Midt-Norge	17	18	16	16
Norwegian Interbank Clearing System (NICS)	146	146	143	145

Table 19: Participation in SWIFT

	2004		2005		2006		2007		2008		2009	
	Norske	**Totalt**	**Norske**	**Totalt**	**Norske**	**Totalt**	**Norske**	**Totalt**	**Norske**	**Totalt**	**Norske**	**Totalt**
Total	**34**	**7 667**	**32**	**7 863**	**32**	**8 103**	**32**	**8 386**	**35**	**8 830**	**36**	**9 281**
Members	14	2 280	14	2 229	13	2 289	13	2 268	13	2 276	13	2 356
Sub-members/domestic users covered by members abroad	12	3 019	11	3 060	11	3 124	10	3 209	12	3 305	12	3 306
Participants	8	2 368	7	2 574	8	2 690	9	2 909	10	3 249	11	3 619

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

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Number of messages sent	9 238	10 521	11 239	12 931	18 590	22 060	30 090	42 300	57 640	52 994
Number of messages received	6 920	8 163	8 747	10 391	13 650	13 500	15 250	17 300	20 200	19 430
Global SWIFT-traffic	1 273 913	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

Prices

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

	2000 to 2008[1]					2009 and 2010[2]			
						List prices		Prices in loyalty schemes	
	2000	2002	2004	2006	2008	2009	2010	2009	2010
Payments									
Online banking (with CID), per payment	1.9	1.9	2.0	2.1	2.0	1.6	1.6	0.1	0.1
Online banking, annual fee						22.8	29.1	0.0	0.2
Direct debit (AvtaleGiro), per payment					2.1	1.6	1.6	0.2	0.1
Mobile banking (with CID), per payment						1.6	1.6	0.2	0.1
Mobile banking – transfers between own accounts, per transfer						0.2	0.2	0.1	0.1
Mobile banking – SMS-account information, per inquiry						2.6	2.4	1.7	1.8
Credit transfer via mail (postal giro), per payment	4.8	5.7	6.5	6.9	7.0	7.2	7.2	7.4	7.7
Giro over the counter – account debit, per payment	16.9	25.1	30.0	33.4	33.6	40.4	46.6	35.5	38.6
Giro over the counter – cash payment, per payment	26.1	31.7	41.9	42.0	43.7	60.6	62.8	55.4	57.4
BankAxept cards in payment terminals (EFTPOS), per payment	2.2	2.1	2.1	2.3	2.3	1.7	1.7	0.0	0.0
Credit cards from international card companies, annual fee						169.2	137.0	25.3	17.5
BankAxept cards (combinded with debet card from int. card comp.), annual fee			265.9	260.7	266.6	243.5	243.3	171.5	192.1
Cheques – retail customers, per cheque booklet						23.5	19.4	19.9	27.2
Cheques – retail customers, per cheque payment	15.0	20.7	20.6	27.3		19.6	18.0	17.5	16.6
ATM withdrawals using BankAxept									
Own bank's ATMs during opening hours, per withdrawal	0.0	0.0	0.0	0.2	0.2	0.3	0.4	0.0	0.0
Own bank's ATMs outside opening hours, per withdrawal	3.8	3.8	3.9	3.9	3.8	2.8	2.5	0.1	0.0
Other banks' ATMs during opening hours, per withdrawal	2.6	3.9	4.7	6.4	6.6	5.3	4.9	5.0	5.0
ATM withdrawals using credit cards from international card companies									
Own bank's ATMs during opening hours, per withdrawal						27.2	25.4	30.1	29.8
Other banks' ATMs during opening hours, per withdrawal						27.3	25.4	30.3	29.9

[1] Average prices for customers that do not participate in loyalty schemes and the like. Prices are based on a sample of 24 banks, representing a market share of sight deposits of 85 per cent. Prices for each bank are weighted based on each bank's share of sight deposits.

[2] As from 2009, average prices are based on 104 banks, representing a market share of sight deposits of 93 per cent. Prices are collected from www.finansportalen.no. The prices for each bank are weighted based on each bank's share of sight deposits. When a bank has more than one loyalty scheme, the median of these prices is used.

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

	2000	2002	2004	2006	2008	2009	2010
Payments							
Electronic giro services							
Direct Remittance without notification	2.1	2.8	3.0	3.4			
Direct Remittance with notification	4.0	4.8	5.2	5.5			
Direct Remittance with CID	1.0	1.4	1.5	1.6			
Other company terminal giro without notification	1.9	2.1	1.6	1.7			
Other company terminal giro with notification	3.1	3.6	3.8	3.7			
Other company terminal giro with CID	0.9	1.0	1.0	2.0			
Online banking – without notification					1.5	1.5	1.5
Online banking – with notification					4.2	4.1	4.2
Online banking – with CID					1.1	1.1	1.1
Paper-based giro services							
Direct Remittance sent as money order	27.8	32.6	35.7	47.9			
Other company terminal giro sent as money order	26.1	32.6	35.3	37.2			
Corporate online banking sent as money order					50.2	75.3	75.6
Receipt of payments							
Electronic giro services							
Direct debits (Avtalegiro) without notification from the bank	1.4	1.4	1.5	1.4	1.3	1.4	1.2
Optical Character Recognition (OCR) – File	0.9	1.1	1.2	1.3	1.3	1.3	1.3
GiroMail					0.0	0.0	0.0
Paper-based giro services							
Optical Character Recognition (OCR) – Return	3.7	3.7	3.9	4.4	3.3	3.2	3.9

[1] Average prices for customers that do not participate in loyalty schemes and the like. Prices are based on a sample of 24 banks, representing a market share of sight deposits of 85 per cent. Prices for each bank are weighted based on each bank's share of sight deposits.

Table 23: Prices for transfers from Norway to EU/EEA countries. Weighted average (NOK). 1 January

	Electronic payment order/ automated processing						Manual payment order					
	2005	2006	2007	2008	2009	2010	2005	2006	2007	2008	2009	2010
Ordinary SWIFT transfer in NOK												
Without BIC and IBAN, NOK 2 500	66.9	59.9	64.7	64.7	65.8	63.8	132.8	136.4	136.4	145.8	157.8	157.1
With BIC and IBAN, NOK 2 500	55.9	40.6	45.6	45.4	58.3	57.0	121.9	125.0	128.6	131.0	143.0	146.1
Ordinary SWIFT transfer in EUR												
Without BIC and IBAN, NOK 2 500 equivalent	66.9	59.9	63.4	63.6	64.6	60.9	132.8	136.4	136.4	145.8	157.8	157.1
With BIC and IBAN, NOK 2 500 equivalent	35.3	32.5	33.9	29.9	29.7	28.9	105.2	110.1	122.6	126.5	139.9	142.8
SWIFT express transfer in NOK												
Without BIC and IBAN, NOK 150 000	311.0	299.2	348.0	332.7	349.3	330.2	377.7	381.1	381.6	387.7	405.0	396.3
With BIC and IBAN, NOK 150 000	300.6	289.9	305.7	300.3	308.1	299.4	367.3	371.5	373.9	373.0	390.3	385.3
SWIFT express transfer in EUR												
Without BIC and IBAN, NOK 150 000 equivalent	311.0	299.2	348.0	333.2	349.8	330.2	377.7	381.1	381.6	387.8	405.1	396.3
With BIC and IBAN, NOK 150 000 equivalent	300.6	282.4	303.4	298.0	304.8	296.5	367.3	362.3	373.9	372.4	389.6	384.6
Cheques to other countries												
Equivalent to NOK 2 500	-	-	-	-	-		205.7	202.5	204.6	207.1	221.5	218.4

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

	Receipt of payments from EU/EEA countries					
	2005	2006	2007	2008	2009	2010
Payments received in EUR						
Without BIC and IBAN, NOK 2 500 equivalent[1]	96.4	86.4	80.8	80.8	59.9	63.0
Without BIC and IBAN, NOK 150 000 equivalent	97.9	93.0	85.1	84.6	62.8	66.0
With BIC and IBAN, NOK 2 500 equivalent[1]	21.6	13.2	12.6	10.4	16.0	17.2
With BIC and IBAN, NOK 150 000 equivalent	95.8	29.6	12.6	10.4	16.0	17.2
Payments received in other currency						
Without BIC and IBAN, NOK 2 500 equivalent[1]	97.9	96.5	92.9	90.6	70.2	71.6
Without BIC and IBAN, NOK 150 000 equivalent	97.9	96.5	98.0	96.4	96.7	93.2
With BIC and IBAN, NOK 2 500 equivalent[1]	95.8	96.5	92.3	90.2	69.6	71.1
With BIC and IBAN, NOK 150 000 equivalent	95.8	96.5	95.2	94.5	74.2	73.9

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

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 that concern general data, means of payment in Norway, clearing and settlement have been prepared by Norges Bank, while the other statistics have been prepared by Statistics Norway (SSB).

Sources

- Information about cash in Norway: Norges Bank.
- Information about clearing and settlement: Norges Bank, NICS, SWIFT and DnBNOR.
- General data: Statistics Norway and the Financial Supervisory Authority of Norway.
- Information about giros, cheques, BankAxept cards, ATMs and payment terminals: Finance Norway (FNO), BBS, EDB Business Partner ASA, SDC, Terra-Gruppen AS, Nordea Bank Norge ASA, DNB NOR Bank ASA, Fokus Bank ASA, Danske Bank NUF, SEB Merchant Banking AB Oslo branch, Cultura Bank, Teller A/S, SEB Kort AB, Ikano Finans AS, Handelsbanken, Citibank International plc Norway Branch, Elavon Financial Services Norway Branch, DnB NOR Kort, GE Money Bank, Entercard Norway AS, Statoil Norge AS, ST1 Norge AS, Uno X Energi Norge AS and A/S Norske Shell.
- Information about withdrawals from ATMs using domestic credit cards and payment cards from international card companies was provided by the owners of the ATMs until end-2005 Information from 2006 was provided by the card issuers.
- Information about cross-border payments other than those that are executed with payment cards: The Register of Crossborder Transactions and Currency Exchange (the Norwegian Directorate of Customs and Excise).
- Prices for retail payment services are based on price information for 104 banks from www.finansportalen.no. Prior to 2009, the prices were collected from the price lists of 24 banks.
- Prices for corporate customers and cross-border payments are collected from a survey of 24 banks.

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 provided by BBS.

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

- The statistics for the number of payment terminals only include EFTPOS terminals that accept
- BankAxept cards. The number of locations with payment terminals refers to each shop, each post office branch, etc.

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

- The figures for miscellaneous giros registered in banks include both cash payments and account debits. Figures for cash payments in 2005 have been in part estimated by Norges Bank and 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.

Tables 10a and 14a – Payment cards. Use of cards

- The figures for cashback withdrawals 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.
- The 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. From 2006, the use of BankAxept cards in Norwegian owned terminals have been included in figures for the use of Norwegian cards abroad. In 2009 4.7% of transactions and 3.1% of the turnover constituted such use of cards abroad.

Tables 10b and 14b – Payment cards. Use of payment terminals

- The statistics for the total use of domestic terminals give an overview of the use of Norwegian and foreign cards, including the oil companies' cards in ATMs and payment terminals.

- The statistics for the use of Norwegian payment cards in domestic terminals do not include cards issued by oil companies.

- The figures for goods purchases in EFTPOS terminals that accept BankAxept cards for 2000 – 2001, do not include the use of domestic credit cards and payment cards issued by international card companies in terminals owned by entities other than banks and oil companies.

- Figures for cashback to end-2006 are based on estimates from BBS and Norges Bank. The figures for 2006 – 2009 only include registered cashback.

- Figures for the use of payment cards in other Norwegian payment terminals apply 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.

Tables 11 and 15 – Cross-border transfers

- The statistics include payments registered in the Register of Crossborder Transactions and Currency Exchange in 2006 – 2008. There is some uncertainty attached to the figures for 2006.

Tables 21-24 – Prices for domestic payment transactions and cross-border transactions

- Prices for retail payment services (table 21) are based on price information for 104 banks from www.finansportalen.no. There are two average prices for each service, one for customers that participate in loyalty schemes and the like, and one for customers not participating in such schemes. Prices for each bank are weighted based on each bank's share of sight deposits. When a bank has more than one loyalty scheme, the median of these prices is used. Prior to 2009, the prices were collected from the price lists of 24 banks.

- Prices for corporate customers and cross-border payments are collected from a survey of 24 banks' list prices (outside loyalty schemes).

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

- For agreement-based giros (Avtalegiro), prices per payment received refer to direct debits without notification.

- Cross-border prices refer to fixed sum transfers in the EEA. Prices do not include additional costs for cash payments, third country currency, confirmations or costs that the payer must cover for the payee.

Explanations of some terms used in the tables

CID (Customer Identification Number): A series of digits that uniquely identifies the payer and provides information about the payment.

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

Direct remittance: Service that is equivalent to company terminal giro.

Giro as money order: Paper-based giro without the payee's account number. The form must be presented in a bank in order to receive payment.

Mail giro: The payer sends a paper-based giro in an envelope directly to BBS rather than delivering the form to his/her bank.

OCR (Optical Character Recognition): Giro with a special code bar that enables the payee to register the amount and to invoice electronically.

Telephone giros: Account transfers initiated by telephone.

Standard symbols in the tables

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

Annual Report on Payment Systems

2009