



 NB NORGES BANK

Annual Report on Payment Systems

2008 | May 2009

Annual Report on Payment Systems 2008



Norges Bank

Oslo 2009

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The statistical annex is also available in Excel format on Norges Bank's website.

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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.

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Editorial

The payment system has passed the test

We have learned a great deal from the international financial crisis. One experience is that financial market regulation has been inadequate. But not all our experience has been negative: the payment systems, both in Norway and abroad, have functioned well both for retail customers and enterprises as well as for banks and other financial institutions. They have thus helped to maintain economic activity during a period when confidence in counterparties has been at a low ebb.

In Norway, payments are effected quickly, securely and cost-effectively. The productivity of the payment system has greatly increased. Paper-based services such as cheques and mail giros have been replaced by payment cards and internet banking. Electronic services now account for 97% of all payments using deposit money. This has reduced the extent of manual operations and has made a major contribution to increased productivity. Developments have been stimulated for several years by the banks' lower level of charges for electronic services than for paper-based services. Cash is still used for a large number of payments, but over time its importance as a payment instrument has diminished.

The costs of payment services in Norway have been estimated at around NOK 11bn, or 0.5% of GDP. The banks' costs associated with payment services are still higher than their income. This applies particularly to services involving cash handling. Reduction of costs and increase in income from such services is a challenge for the banks. If the banks do not succeed in covering their costs, the deficit in payment services must be covered by other areas of the banks' business.

Jan F. Qvigstad

14 May 2009

1. Payment services

1.1 Introduction and summary

Norges Bank is responsible for promoting an efficient payment system in Norway and vis-à-vis other countries. An efficient payment system is one where payments are carried out quickly, securely and cost-effectively. Viewed in these terms, the payment system in Norway has shown a positive development for many years.

The number of payments using deposit money is increasing, and electronic payment services are dominant. Cash seems to be less used for payments than previously. Further information concerning the use of cash and deposit money is provided in sections 1.2 and 1.3.

Norges Bank has conducted a study of costs in the payment system.¹ The total costs for participants of the payment system were estimated at approximately NOK 11bn, approximately 0.5% of GDP (0.7% of mainland GDP). The banks and their subcontractors account for the largest share of the costs. The survey shows that the cost of each payment has fallen considerably over time. A further account of the Cost Study is given in a separate box on page 10. The results are also referred to in sections 1.2 and 1.3.

For several years, the banks have priced electronic services lower than manual ones. This has probably resulted in users taking up electronic services faster than they would otherwise have done.² The banks' income from payment services covers a steadily increasing part of their costs. This income is partly derived from charges for each payment and partly from charges for account maintenance, often in connection with so-called loyalty programmes. The banks also provide services with low cost absorption. This applies particularly to services that involve cash handling. Reducing costs and increasing income from

such services is a challenge for the banks.

The payment system in Norway is characterised by stable and secure systems and a low level of fraud. The extent of cash counterfeiting is particularly low in Norway. This is discussed in section 1.4.

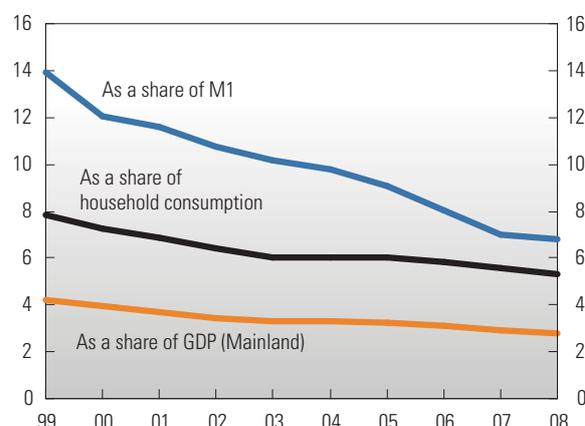
Payments by means of electronic services take place rapidly, particularly within Norway. Payments vis-à-vis foreign countries take longer, but international efforts are being made to make cross-border payments faster and cheaper. This is discussed in section 1.5.

1.2 Cash

1.2.1 Use of cash

The amount of deposit money has shown strong growth in recent years. The amount of cash in circulation has been more stable, and thus constitutes a diminishing proportion of total means of payment (approximately 7% in 2008) (see Chart 1.1). Calculated as a percentage of GDP and household consumption the value of cash in circulation is also falling. The value of cash in circulation

Chart 1.1 Value of cash in circulation as a share of means of payment (M1), household consumption and mainland GDP. Per cent. 1999 – 2008



Sources: Statistics Norway and Norges Bank

¹ See Gresvik and Haare (2009a).

² On the basis of data for Norway and the Netherlands, Bolt et al. (2008) find that direct pricing of payment services increases the rate of change towards electronic services by approximately 20%. Humphrey et al. (2001) and Scholnick et al. (2008) also find that consumers respond to price in their choice of payment instrument.

relative to means of payment is lower in Norway than in many other countries (see Chart 1.2).

Norges Bank's accounts provide information on the amount of cash in circulation. The accounts of the banks show the amount of deposits that can be used for payments. The banks and enterprises that issue or acquire payment cards provide Norges Bank with information concerning use of deposit money in the payment system (see also section 1.3). However, there is no certain information concerning the use of cash for payments. Cash is mainly used for payments at merchants (e.g. shops, petrol stations, restaurants and other service enterprises) and for payments between private individuals. There is little information on how many cash payments are made.

Gresvik and Haare (2008) used two different methods to determine how much cash is used for payments. These two methods gave very different results.

- 1) As a part of the study of costs associated with payment services, a sample of private individuals were asked, among other things, how many cash payments they had made on the previous day. Their responses indicate

that approximately one-quarter of the payments were made in cash. On this basis, it has been estimated that 285mn cash payments were made in 2007.

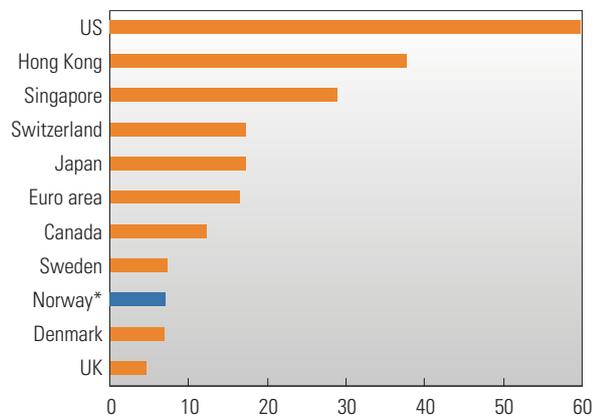
- 2) Statistics for payment by payment card, withdrawals from ATMs and household consumption were also used to determine how cash is used. By this method, it was concluded that cash is used in approximately half of the payments.

Both methods show a reduction in the use of cash for payments in recent years.

Cash has properties that will make it a widely used payment instrument for the foreseeable future. The Norwegian Savings Banks' Association conducted a customer survey in 2009. Approximately three out of four of those asked stated that there are always or sometimes advantages associated with paying in cash rather than by card. The respondents appreciate the fact that cash can be used free of charge and allows simple, secure and anonymous payment. They also state that cash payments are rapid and simple for small amounts.

Norges Bank issues notes and coins, and is responsible

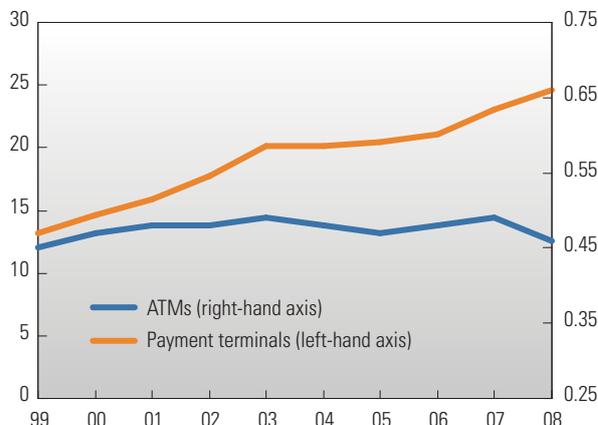
Chart 1.2 Cash as a share of means of payment (M1) in selected countries. Per cent. 2007



* Mainland GDP

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

Chart 1.3 Number of payment terminals at merchants and number of ATMs. Per thousand inhabitants. 1999 – 2008



Source: Norges Bank

for ensuring that they have properties that enable them to function well as means of payment, among other things, that they are of high quality. The central bank shall be able to meet the needs of society for cash as a means of payment, and provide for its availability in a manner that promotes an efficient overall payment system. Norges Bank has reassessed its division of responsibilities with the banks so that the central bank has now assumed a clearer “wholesaler role” in cash supply. The banks now have a greater responsibility than before for handling and redistributing cash.

Cash is available from ATMs, payment terminals in shops and from bank branches. The number of traditional bank branches has been falling for some years. The number of ATMs has been stable for the last ten years. There has been a steady increase in the number of payment terminals located in shops and at other merchants, where customers can withdraw cash while paying for goods or services by card (see Chart 1.3). The number of withdrawals from ATMs, and the value of these withdrawals have long been stable. Withdrawals of cash in connection with the purchase of goods or services increased up to 2004, but have fallen somewhat since then.

For a brief period in autumn 2008, there was an increase in public demand for cash and deposits were reduced (see Chart 1.4). This may have been a result of a reduction in public confidence in the banks owing to the financial turbulence, and specific problems experienced by certain banks at that time.

1.2.2 Cost of cash

Cash handling demands considerable resources. Cash has to be securely transported and stored. Although advanced machinery has been used for counting, sorting, packing and destroying cash during the last decades, much of the work involved in cash handling must still be carried out manually. This applies for instance to refilling and maintenance of ATMs.

Norges Bank’s Cost Study provide information on the costs incurred by the participants of the payment system (banks and their subcontractors, shops and other merchants, consumers and Norges Bank) in connection with cash handling. The total costs (social costs) are estimated at approximately NOK 3.5bn (see Table 1).

Chart 1.4 Cash in circulation. NOK billions. 2007 and 2008



Note: The variation in the spring is due to the fact that Easter was in April in 2007 and in March in 2008.

Source: Norges Bank

Table 1: Social cost of cash handling. NOK millions

| | |
|--------------------|--------------|
| Banks | 1 715 |
| Subcontractors | 486 |
| Norges Bank | 128 |
| Households | 848 |
| Merchants, etc. | 317 |
| Total costs | 3 494 |

Source: Gresvik and Haare (2009a)

The greater part of these costs is borne by the banks. In addition to their own costs amounting to NOK 1.7bn, the banks paid NOK 0.5bn to subcontractors of services associated with cash handling. Only to a limited extent do the banks charge for their cash services. In 2007, these charges totalled NOK 0.6bn. This income thus covered only 27% of the costs of the banks' cash services. Since a small proportion of the costs is covered, the banks have an incentive for reducing the costs and increasing the income from cash services. The banks have established measures for reducing the use of cash and the amount of cash that must be handled.

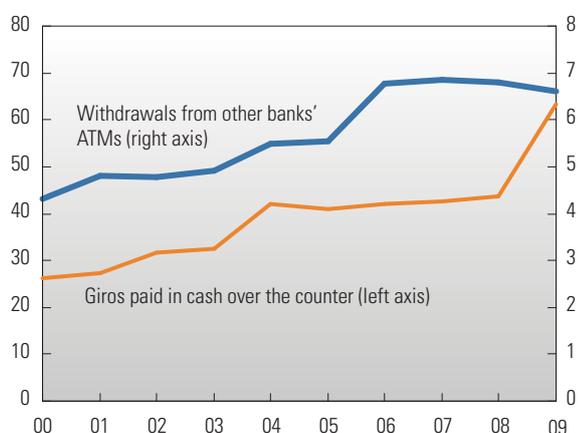
The prices of payment services influence the public's choice of payment instrument. The banks have set high charges for certain services involving cash handling, such as payment of bank giros in cash over the counter (see Chart 1.5). The prices charged by the banks for withdrawals from other banks' ATMs increased up to 2006, but have since been stable. Shops and other businesses must pay charges when they deposit cash with banks. The banks have so far been reluctant to charge for cash withdrawals over the counter.

DnB NOR and Postbanken have established in-store banking outlets at approximately 2 000 locations (DnB NOR 2009). These provide simple banking services, such as deposit and withdrawal of cash. This will reduce the amount of cash that must be handled by the banks. The banks are also developing payment instruments suitable as alternatives to cash (see the box on mobile telephones on page 9).

The amount of cash that the banks must handle may be reduced if the number of ATMs is reduced. In order to bring this about, the banks will make it less profitable to set up ATMs. The bank that owns an ATM is entitled to charge for each withdrawal by a customer of another bank. This charge between the banks was reduced from NOK 6.50 to NOK 5.50 per transaction with effect from 1 March 2008. From 1 January 2009, it was further reduced to NOK 4.50.

The largest banks are also making efforts to coordinate the transport and distribution of cash.

Chart 1.5 Prices of cash payments at bank branches and cash withdrawals from ATMs. Weighted average for the banks included in the survey. NOK. 2000 – 2009



Source: Norges Bank

Use of mobile telephones for payments

There is widespread use of mobile telephones in Norway, with more than 5mn registered subscriptions. Mobile telephones can be used for various payment services, and provide customers with new means of payment. There is a considerable potential for payment services for mobile telephones. A survey conducted by the Norwegian Savings Banks' Association shows that one out of four persons could envisage using mobile telephones to access banking services

Use of mobile telephones for transfers and bill payments

Most banks in Norway provide banking services for mobile telephones by means of SMS text messaging. Customers can transfer money between their own accounts, and obtain information about balances by sending an SMS to the bank. Some banks also allow customers to use SMS to transfer money to a

predefined group of payees, to transfer money to bank accounts from credit cards or to pay bills by authorising electronic invoices received. A number of banks in Norway also provide "WAP services", which enable mobile telephones to be used as a new channel for access to internet banking. The customer can then carry out transactions such as paying bills and transferring money between his own accounts.

The Norwegian Savings Banks' Association concluded that approximately 230 000 persons use mobile telephones to access online banking. It is also estimated that approximately 380 000 customers use SMS services.

Use of mobile telephones for payment in shops and on the Internet

Mobile telephones can also be used to pay for goods and services pur-

chased in shops and on the Internet. Payments are then made by means of deposits on bank accounts or credit provided by a card company. It is probable that this type of service can replace the use of cash for many small payments. Banks in Norway do not currently offer such services, but trials are being conducted.

It is also possible to pay by mobile telephone by using mobile telephone subscriptions to pay for services other than telephone services. Services purchased by mobile telephone are then paid by means of deposit money, e.g. a credit transfer, when paying the telephone bill. Such solutions are in particularly common use for purchasing additional services for mobile telephones (ringing tones, etc.), but can also be used for payment of other services.

The Cost Study¹

Purpose and scope

Norges Bank has conducted a study of the costs associated with payment services in 2007. The purpose was, amongst others, to survey the costs of various payment instruments and cost trends over time. Norges Bank conducted similar surveys in 1988, 1994 and 2001. The 2007 survey covers the same ground as the previous surveys, but has been given wider scope as regards both the number of services and the participants in the payment chain that have been included.

The analysis maps the costs for production and use of payment services by the banks and their subcontractors, Norges Bank, households and merchants.² The data is primarily derived from three sources (banks, households and merchants). The survey covers the most used domestic payment services: payment cards, cash and giros (credit transfers and direct debits). Costs have been calculated for a total of 26 services. Bank-to-bank payments, cross-border payments and payments by means of cheques and electronic money are not included. Nor does the survey cover all the costs to all payees, e.g. costs associated with giros issued. Norwegians' costs associated with the use of payment services abroad are not dealt with by the survey.

Method

The banks participating in the survey

provided cost data. The costs were distributed between various payment services. *Households* were interviewed over the telephone about their payment habits and about payments made on the previous day. Costs were identified using observations of time consumption for payment at point of sale, time consumption in connection with cash withdrawals/deposits and income statistics from Statistics Norway. The costs to *merchants* were calculated on the basis of a questionnaire used to survey costs and routines for payment by card and cash. A separate time study of payment receipts was carried out to provide the best possible information on the time consumption by each type of payment instrument.

The sum of the costs per service per participant is the private cost for each participant. In order to calculate the total costs to society (social costs) the costs for deliveries between the participants in the payment chain and transfers (charges) between these were eliminated. The method is described in Bergman et al (2007).

Some results

- The total costs to society of using and producing the payment services cards, giros and cash are estimated in the survey at about NOK 11bn in 2007. This corresponds to approximately 0.5% of GDP.
- When these costs are distributed

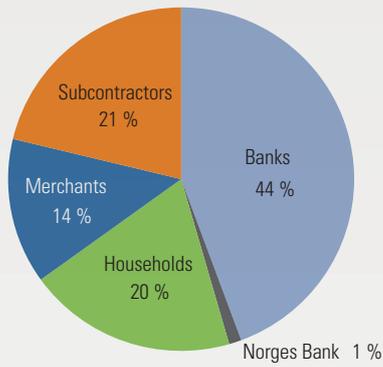
between the participants involved in the payments, the banks account for NOK 5.0bn, subcontractors (mainly to the banks) for NOK 2.4bn, households for NOK 2.2bn and merchants for NOK 1.5bn (see Chart 1).

- When the costs are distributed between payment services, card payments account for NOK 5.4bn, credit transfers and direct debits (giro payments) for NOK 2.3bn, cash services in banks (deposits and withdrawals) for NOK 3.0bn and the cost of the cash payments themselves for NOK 0.5bn (see Chart 2).
- Banks' cost recovery on payment services has increased steadily since the first Norges Bank cost survey in 1988. Cost recovery in 2007 was 88% when excluding cash and 71% when cash is included (see Chart 3).
- Banks' cost recovery varies between different products. The highest recovery is found for giro services and the lowest for cash services (see Chart 4).
- The average costs for each transaction in the banks have fallen over time (see Chart 5).

¹ See Gresvik and Haare (2008, 2009a, b and c)

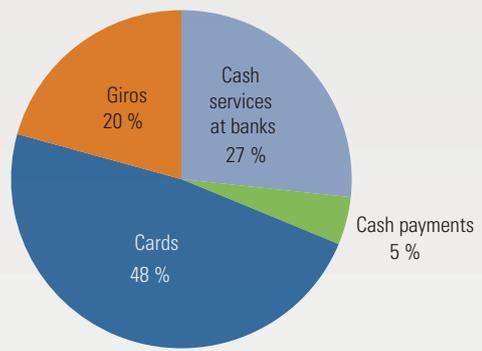
² *Merchants* are shops, transport companies, service providers, etc. that receive payment for goods and services at points of sale.

Chart 1 Social cost (NOK 11bn) by participant. Per cent. 2007



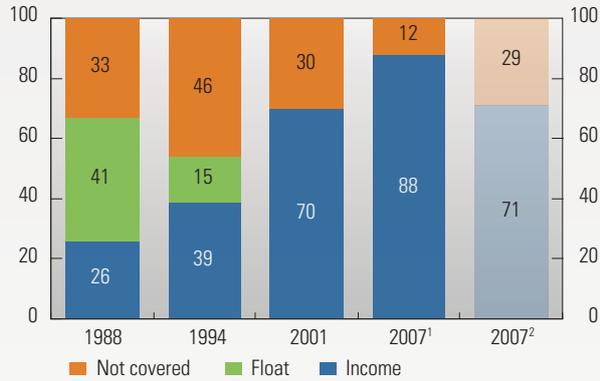
Source: Norges Bank

Chart 2 Social cost by payment service. Per cent. 2007



Source: Norges Bank

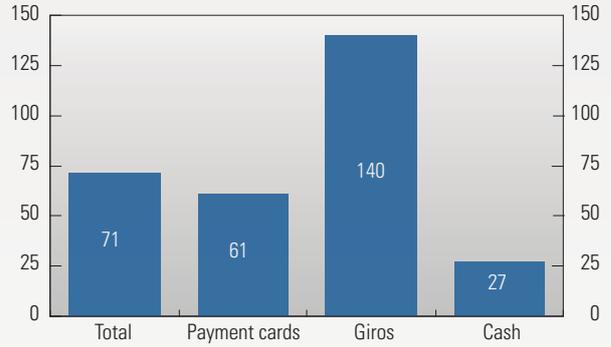
Chart 3 Bank coverage of costs of payment services. Income as per cent of private costs. 1988, 1994, 2001 and 2007.



¹ Not including costs and income from cash
² Including costs and income from cash

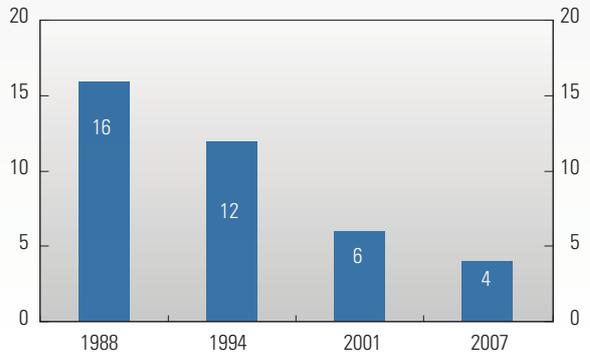
Source: Norges Bank

Chart 4 Bank coverage of costs for various payment services. Income as per cent of private costs. 2007.



Source: Norges Bank

Chart 5 Bank unit costs. 2007-NOK. 1988, 1994, 2001 and 2007



Source: Norges Bank

1.3 Deposit money

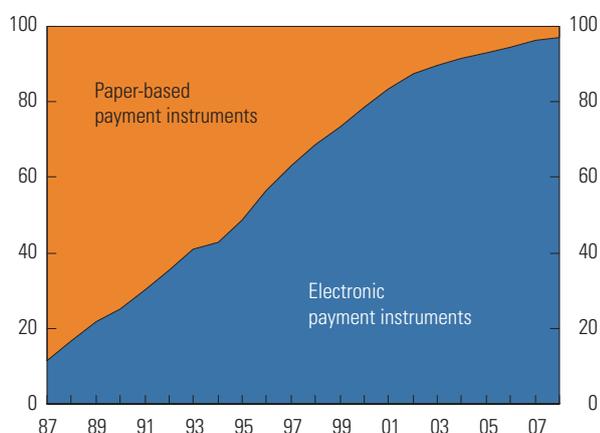
While the use of cash as a means of payment has diminished, new payment services based on deposit money have rapidly increased in popularity. Households and enterprises have markedly increased their bank deposits. At the end of 2008, deposit money constituted 93% of means of payment. A total of 1.6bn payments were made using deposit money in 2008. This represents an increase of almost 9% compared with the previous year.

Widespread use of electronic services

Almost all payments using deposit money are now carried out electronically (see Chart 1.6). Paper-based services have been replaced by payment cards and online banking.

The banks have increased their productivity in supplying account-based payment services (see Table 2 and Chart 1.7). This is partly a consequence of the transition to electronic services. The banks' income from account-based payment services has covered a steadily increasing part of the costs since Norges Bank's first cost survey in 1988 (see the box on the cost survey).

Chart 1.6 Use of paper-based and electronic payment instruments. Transactions in per cent. 1987 – 2008



Source: Norges Bank

The most used payment services in Norway are online banking credit transfers and payment cards. These use of these services also increased in 2008. Other electronic services such as direct debits (Avtalegiro) also experienced increased usage. The most popular services are among those that have the lowest social costs (with banks, subcontractors, households and enterprises) for each payment (see Table 3).

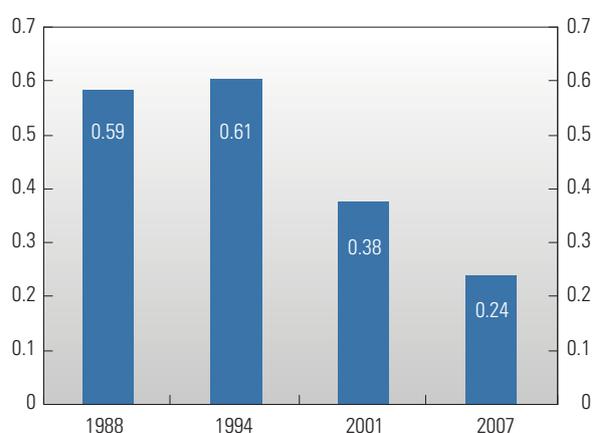
For several years, the banks have set lower prices for electronic services than for manual services (see Chart 1.8). This has probably encouraged customers to adopt electronic services more rapidly than they would otherwise have done. In recent years, many banks have begun to offer free use of electronic services while charging a regular fee for account maintenance. Pricing of payment services is further discussed on page 17.

Payment cards

The extent of payments by card has increased relative to household consumption and GDP (see Chart 1.9). In Norway, the number of card transactions per inhabitant is among the highest in the world (see Chart 1.10).

The Norwegian banks have developed a common system

Chart 1.7 Bank costs associated with account-based payment services. Share of GDP. Per cent. 1988, 1994, 2001 and 2007



Source: Norges Bank

Table 2 Productivity indicators for the banks¹

| | 1988 | 1994 | 2001 | 2007 |
|--|-------|-------|-------|-------|
| Costs (billions 2007-NOK) | 6.0 | 7.0 | 6.6 | 5.4 |
| Costs as a share of GDP | 0.59% | 0.61% | 0.38% | 0.24% |
| Unit costs (rounded off to whole 2007-NOK) | 16 | 12 | 6 | 4 |
| Number of transactions in banks (millions) | 381 | 481 | 968 | 1 512 |
| Number of branches | 2 200 | 1 600 | 1 429 | 1 260 |
| Number of full-time employees (thousands) | 33 | 23 | 23 | 20 |

¹ The figures have been adjusted to make the costs comparable over time. E.g. the cost of cash has not been included for 2007. For explanations and assumptions, see Gresvik and Haare (2009b)

Sources: Norges Bank and Norwegian Financial Services Association (FNH)

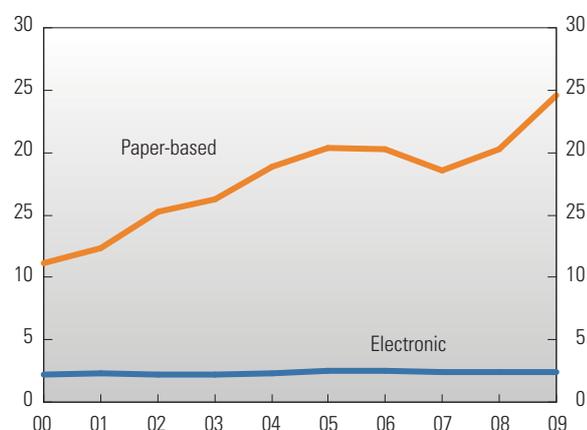
Table 3: Social costs for banks, subcontractors, households and merchants. Average for each payment with specific instruments¹

| | |
|--------------------------------------|-----------|
| Direct debit (Avtalegiro) | NOK 2.50 |
| Credit transfer via internet banking | NOK 3.00 |
| BankAxept card | NOK 4.00 |
| Credit transfer, paper-based | NOK 17.00 |

¹ The figures have been rounded off.

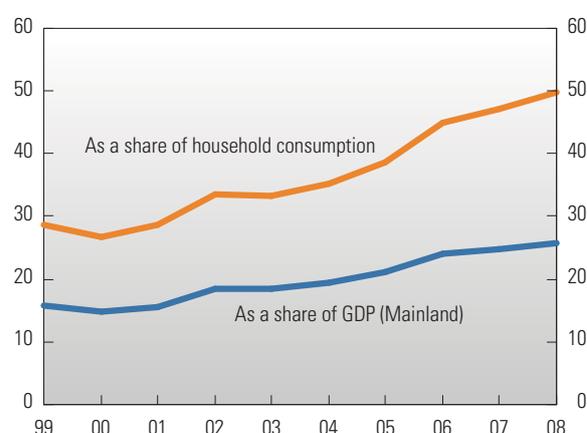
Source: Gresvik and Haare (2009a)

Chart 1.8 Prices of electronic and paper-based payment services. Weighted average of nominal list prices. NOK. 2000 – 2009



Source: Norges Bank

Chart 1.9 Value of goods purchases using payment cards. As a share of household consumption and mainland GDP. Per cent. 1999 – 2008



Sources: Statistics Norway and Norges Bank

The different types of payment card

Debit card

Payment card that enables the card owner to access deposits and credit on the bank account with which the card is associated. Each payment is drawn from the account.

Credit card

Payment card with a credit facility. Withdrawals against the credit can be repaid in instalments or as a single payment.

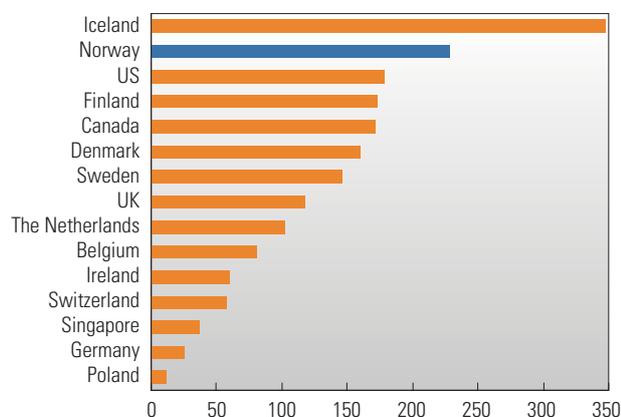
For more information on the various types of payment card, see the definitions at the end of the report.

for card payments called BankAxept. BankAxept is the most used payment card in Norway, and covers 89% of all card payments. The number of payments using these cards increased by 12% in 2008. Use of various cards issued by international card companies increased by 17%. Payments using such cards constitute 10% of all card payments. The value of payments and cash withdrawals using the various card types is shown in Chart 1.11.

Payment cards are used for increasingly smaller amounts. While the average amount for a goods purchase using a payment card in 1999 was almost NOK 515, it was NOK 415 in 2008. Chart 1.12 shows developments in payments by card by different amount ranges.

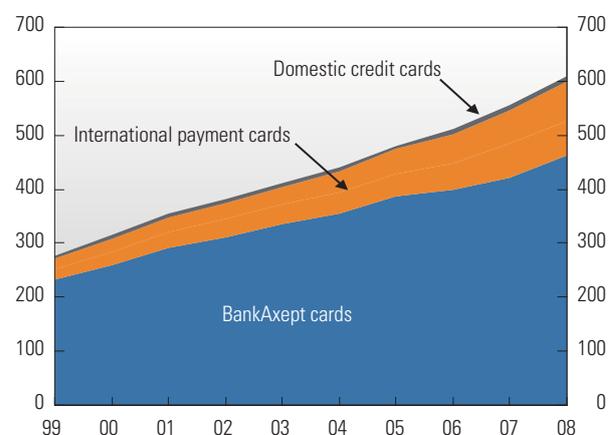
The number of payments made by card is related to the number of cards issued and the number of locations where they are accepted. It is more attractive to obtain and use a card if they are accepted by many merchants, and it is more attractive for a shop to obtain a card terminal if many customers use cards. At the end of 2008, over 116 000 payment terminals had been deployed at a total of 94 000 merchants, representing a growth of respectively 8% and

Chart 1.10 Number of card transactions per inhabitant. 2007



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

Chart 1.11 Use of payment cards. NOK billions. 1999 – 2008



Source: Norges Bank

11% from the previous year. At the same time, almost 11mn payment cards had been issued in Norway. Many cards have more than one payment function, e.g. BankAxept combined with Visa or MasterCard. There were thus almost 17mn payment functions on the approximately 11mn cards.

In 2008, over 30mn payments using Norwegian payment cards were registered in connection with internet shopping. Payment cards issued by international card companies are the dominant payment instrument for such trading. BankAxept is a new service for payment in connection with online shopping developed by the banks in Norway. Customers who pay by means of BankAxept prove their identity and authorise payment by means of BankID (see the description of BankID). At the start of 2009, a large number of banks offered BankAxept, and approximately 160 web shops were registered as merchants. Use is showing strong growth, but from very low levels. In 2008, approximately 10 000 payments were made by means of BankAxept. BankAxept enables customers and merchants to choose between more means of payment for online shopping, and thus increases competition.

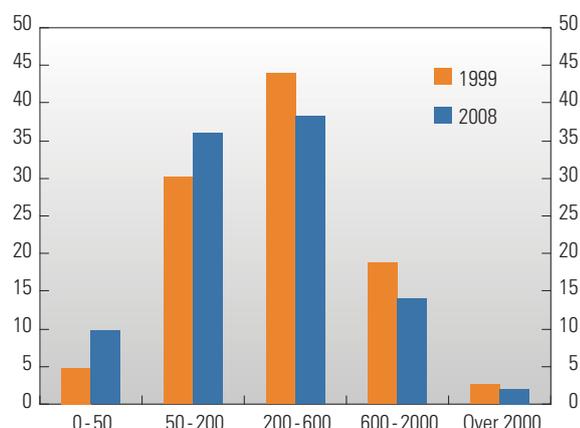
BankID

BankID is a system for personal electronic identification and signing via the Internet. Most people who have a BankID use it for logging into and signing in their Internet bank. Many people also use BankID for online purchases and in connection with public services on the Internet.

BankID is provided and issued by the banks in Norway. BankID is based on a coordinated infrastructure developed by the banking sector through the Norwegian BankID Scheme under the auspices of the Norwegian Financial Services Association and the Norwegian Savings Banks' Association.

In February 2009 a total of 1.9mn active personal BankID certificates (PersonBankID) had been issued, and BankID is used over 600 000 times a day.

Chart 1.12 Payments by card, by amount range in NOK. Per cent. 1999 and 2008



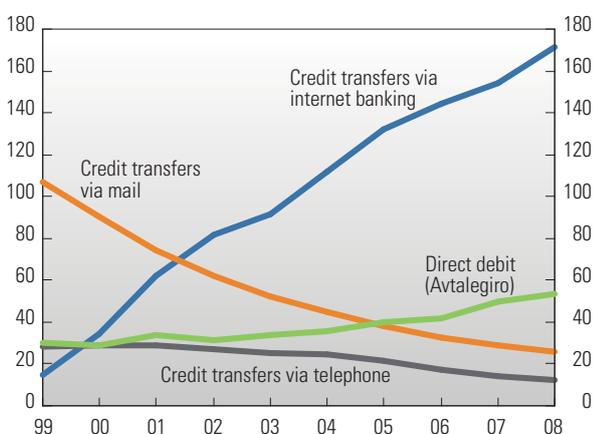
Source: BBS

Competition between providers of payment services is important for the further development of the systems for card payments in Norway. The Competition Authority (2009) has drawn attention to a number of challenges for the competition in the Norwegian card market. The Competition Authority maintains that, although both BankAxept and the international card systems have resulted in reduced costs associated with giving users access to electronic payment services, there remain important challenges for the competition. Among other things, the report points out that, owing to the ownership structure of BankAxept and the operator of the system (BBS), the banks are involved in virtually all the links of the value chain, and that this may have negative consequences. In the case of the international card systems, attention is drawn to weak competition in some areas of the market and a number of challenges associated with their rules.

Bill payments (giro payments)

Credit transfers initiated via internet banking is the payment service that has shown fastest growth in recent years (see Chart 1.13). The number of internet banking agreements increased by 9% from 2007 to 2008. The

Chart 1.13 Retail bill payments. Millions of transactions. 1999 – 2008



Source: Norges Bank

Norwegian Savings Banks' Association's internet banking survey (Norwegian Savings Banks' Association 2009a) shows that 81% of the adult population, or approximately 3.1mn persons, now use internet banking. In recent years, growth has been particularly strong among customers over 66 years of age. In this age group, 43% now use internet banking.

Use of direct debits (Avtalegiro) has also become a great deal more common during the last ten years. From 2007 to 2008, the number of such payments increased by 8%. Over 11 000 enterprises offer this service.

The number of payments made by means of paper based credit transfers fell by 12% from 2007 to 2008, and now accounts for approximately 8% of all giro payments. In the retail market, credit transfers initiated via mail is the most popular of the paper-based services. In 2008, the number of such payments fell by 10%, and the number of agreements fell by over 20%.

There has been a steady increase in the number of invoices that are sent electronically and made available to customers via online banking. In 2008, there were approximately 18mn, compared with almost 14mn in 2007³. A total of 5% of credit transfers paid via internet banking were thus paid in response to such invoices. In December 2008, 530 enterprises were able to send such invoices. This is 16% more than the previous year. At the same time, 4.1mn agreements to receive such invoices were concluded, which is an increase of 40% from the previous year.

The transition to internet banking, electronic invoicing and direct debits is expected to continue during the years ahead. This will facilitate more efficient handling of payments by the banks. These services also simplify payment of bills for households, and improve handling of incoming and outgoing payments for enterprises.

³ The statistics relate to electronic invoices registered in BBS.

Theory concerning pricing of payment services

Economic efficiency is achieved when the price is equal to the marginal cost

Economic efficiency entails maximisation of the total benefits to consumers and providers of payment services. In a "standard" market, demand curve can be defined as the marginal service user's willingness to pay at different aggregate quantities. Correspondingly, supply curve can be defined as the marginal cost for the producer at different aggregate quantities. The highest economic efficiency is achieved when the price is equal to the marginal cost (the price and the quantity corresponding to the point where the two curves cross). The additional benefit received by the consumer from the payment service is then equivalent to the additional cost of providing the service.

Fixed charge element when economies of scale

Payment systems are characterised by high fixed costs on the supply side, partly resulting from investments in infrastructure. This indicates that the costs per payment fall as the volume increases. This is often referred to as economies of scale. Although the average cost falls when the volume of transactions increases, it will still be higher than the marginal cost in cases of economies of scale. If the price is set equal to the marginal cost, the service provider therefore does not achieve full cost absorption.

However, a pricing strategy may be adopted that provides both economic efficiency and cost absorption: a fixed price that covers the average fixed cost and a transaction charge that covers the average variable cost. See Bolt and Humphrey (2005) for a discussion of such a dual pricing strategy. The average variable cost is a simplification of marginal cost. Several Norwegian banks have adopted a price structure that resembles this for their electronic payment services.

Payment services are provided in a two-sided market

The payment system is a network for exchange of values, on the one hand, between those who pay (e.g. consumers) and, on the other hand, payees (e.g. shops). Such a two-sided market is characterised by the fact that a payment service must be demanded by two types of user (consumers and shops) in order that such a service shall be traded. Another characteristic of such markets is that the benefit to existing users on one side of the market increases when new users connect on the other side of the market. For example, the more shops that accept card payments, the more use consumers will have for their cards. And the more consumers holding payment cards, the more attractive it becomes for shops to accept payments by card.

The demand curve in such a two-

sided market expresses the sum of what the two marginal service users (payer and payee) are willing to pay for the service. The supply curve in a market for payment services expresses the sum of the marginal costs borne by the payer's bank and the payee's bank.

Equilibrium when charges are equal to the sum of the marginal costs

The market is in equilibrium when supply is equal to demand. We find this where the supply curve and the demand curve cross. In a two-sided market, this means that the total willingness to pay of the payer and the payee is equal to the sum of the marginal costs borne by the payer's bank and the payee's bank (see Baxter 1983).

When the market is in equilibrium, the prices for the payers and payees are such that the demand from the payers is exactly equal to the demand from the payees. This does not mean that the charge to the payer is equal to the marginal cost for the payer's bank or that the charge to the payee is equal to the marginal cost for the payee's bank. If this occurred, it would be completely accidental. An economically optimal adaptation is achieved when the sum of the prices is equal to the sum of the marginal costs.

1.4 A secure payment system

The Norwegian payment system is stable and reliable. The extent of fraud is low.

The payment system is to a very great extent based on the use of information and communications technology (ICT). The reporting of ICT events to Kredittilsynet (The Financial Supervisory Authority of Norway) shows that by far the majority of ICT events in the payment system are associated with operational disruptions and system errors (Kredittilsynet 2009). Most events are associated with internet banking. The card payment systems in shops and ATMs are more stable. Most events associated with internet banking services are related to software problems. In Kredittilsynet's view, there is a challenge involved in ensuring that the software is well adapted to changes in the system environment.

Kredittilsynet has established that organised criminal groups increased the extent of their attacks on internet banking systems and banking websites in 2008. Another major area of threat that Kredittilsynet draws attention to is that of data and identity theft, particularly production of

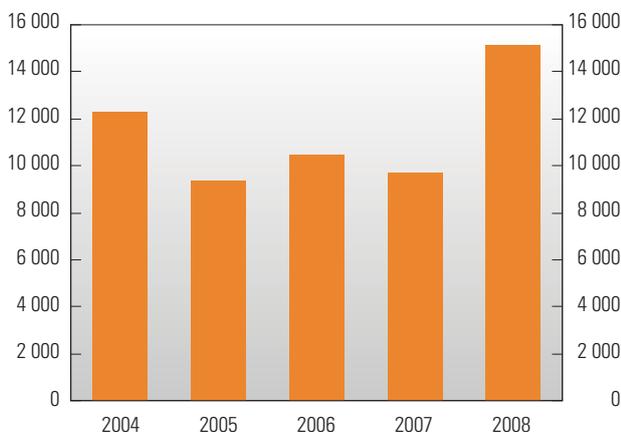
counterfeit payment cards based on stolen information.

The Norwegian Financial Services' Association (FNH) gathers data that include approximately two-thirds of the Norwegian banks in terms of assets. In 2008, the FNH registered 15 146 cases of fraudulent use of payment cards. This represents a considerable increase from previous years (see Chart 1.14). The value of losses in 2008 amounted to approximately 0.02% of total sales involving use of payment cards. This is at approximately the same level as previously.

The banks in Norway now issue cards with a chip in order to reduce the extent of fraud. At the end of 2008, 35% of cards in Norway had such chips as against 26% the previous year. By the end of 2011, all cards shall be chip based. It is more difficult to copy information from a chip than from a magnetic stripe. Many payment terminals in shops can still only read magnetic stripes, while all ATMs can now read chips.

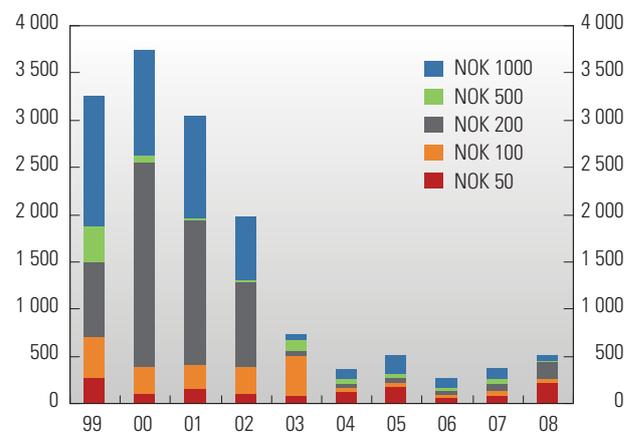
Bank customers have considerable faith in the safety of using internet banking. Early in 2009, the Norwegian Savings Banks' Association (2009b) asked bank customers

Chart 1.14 Fraudulent practices registered by the Norwegian Financial Services Association (FNH). Number of card frauds. 2004 – 2008



Source: Norwegian Financial Services Association (FNH)

Chart 1.15 Number of seized counterfeit notes. 1999 – 2008



Source: National Bureau of Crime Investigation

whether they regard it as safe to use internet banking services. On a scale from 1 to 6, where 1 stands for very little confidence and 6 stands for very great confidence, the average for the survey was 5.38. 90% of internet banking customers awarded 5 or 6 on this scale.

Cash is only suitable as a means of payment as long as users trust that it is genuine. During the period from 2002 to 2004, Norges Bank added new security features to the 50-, 100- and 200-krone notes. Since then, there have been very few counterfeit Norwegian notes. In 2008, 503⁴ counterfeit notes were registered (see Chart 1.15). For every million notes in circulation, Norway has four counterfeit notes whereas the euro countries have 56 (ECB 2009).

1.5 Improved cross border payment services

The prices of payments between Norway and other countries are currently far higher than the prices of corresponding transfers in Norway. It costs on average approximately NOK 30 to pay a bill to a payee in the euro area. While the prices of electronic transfers have been quite stable in recent years, there has been a marked increase in the price of services with a major element of manual tasks. This is appropriate to achieving a more rapid transfer to electronic services and to reducing consumption of resources. Payments in euro cost less than payments in NOK and other currencies.

In Europe, the banking sector, central banks and public authorities are working towards the establishment of a single European payments area (SEPA). It is their aim that cross-border payments in euro within the EU shall be as simple and swift to carry out and not cost more than payments made within a member state. The European banking sector has therefore initiated the design of a common set of payment instruments within the EU countries. Most banks and infrastructure providers in Europe have now upgraded their systems in order to be able to handle the new payment instruments. A common

European system for credit transfers was launched in January 2008, but most such payments are still carried out by means of the national systems. However, it is expected that the national systems in the EU will be gradually withdrawn from service. It is difficult to predict what will happen to the Norwegian payment systems. This will depend on the extent to which the banks in Norway view it as appropriate to allow the systems for NOK to resemble the new European solutions and the extent to which the European solutions are adapted to currencies other than euro.

A single European payments area will require a common statutory platform, which will be provided by the EU Directive on payment services.⁵ This Directive was adopted on 13 November 2007, and incorporated into the EEA Agreement on 7 November 2008. A working group proposed in February 2009 to implement the Directive's rules on rights and obligations of users and providers of payment services through amendments of the Financial Contracts Act (Sletner et al. 2009). The Directive requires provisions concerning a new type of institution – “payment institutions”, which will be able to provide payment services to the public in competition with banks and other payment service providers. The directive stipulates rules on the establishment of these institutions, rules regarding capital and other security features, and there is also a requirement to make sure that all service providers have access to the necessary infrastructure. The deadline for national implementation of the Directive for EU-countries is 1 November 2009.

⁴ The figures refer to notes withdrawn in Norway.

⁵ Directive 2007/64/EC of the European Parliament and of the Council.

2. Interbank systems

All transactions between banks and between customers of different banks are settled in the interbank systems. In a little over a week, values equivalent to Norway's GDP are channelled through them. The settlement of both regular customer payments and large payments associated with loans between banks and foreign exchange and security trading is dependent on well functioning interbank systems. Their organisation also influences how problems might be transmitted between banks. Norges Bank oversees major interbank systems, and supervises systems subject to authorisation pursuant to the Payment Systems Act (see box on page 22).⁶

In Part 2.1, we discuss the major interbank systems in Norway. In Part 2.2, we examine how these have managed during the financial turbulence and how the risks in the system have changed as a result of the turbulence.

2.1 Major interbank systems in Norway

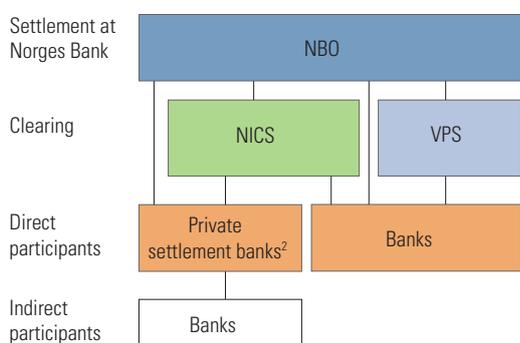
2.1.1 Norges Bank's Settlement System (NBO)

Norges Bank is the ultimate settlement bank in Norway (see Chart 2.1). At the end of 2008, 143 banks had accounts in Norges Bank. A payment is settled by crediting the account of the bank that is to receive the money and debiting the account of the bank that is to pay. Payments can be settled individually (referred to as gross settlement) or by first netting a number of individual transactions, so that each bank ends up with either a debt or a claim (referred to as net settlement).

The banks can cover their debit positions in the settlement by drawing on deposits or by means of a borrowing facility in Norges Bank. To obtain a borrowing facility, they must pledge collateral. Norges Bank approves a number of Norwegian and foreign securities as collateral for loans. The rules were amended in autumn 2008 so that more securities could be approved as collateral (see part 2.2).

In 2008, the average daily turnover in NBO was NOK 225bn (see Chart 2.2). The settlement of payments

Chart 2.1 Interbank systems in Norway¹

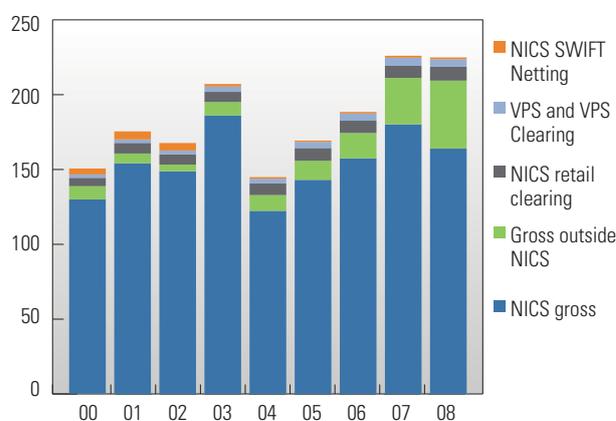


¹ The chart does not provide a complete picture

² DnB NOR is the largest private settlement bank in Norway

Source: Norges Bank

Chart 2.2 Daily turnover in NBO by settlement. NOK billions. 2000 – 2008



Source: Norges Bank

⁶ For further information concerning Norges Bank's oversight and supervision, see Norges Bank (2007) and Haare and Sletner (2007).

sent individually and settled in real time constitute the largest amounts, on average NOK 210bn per day. A small number of banks account for the largest share of the transactions. In autumn 2008, Norges Bank issued more and larger F-loans than previously. These transactions are sent gross outside NICS, and explain a major part of the increase in this type of transaction, as shown in Chart 2.2.

The operational stability of NBO has been good in recent years. In 2008, the operational stability of the settlement system was somewhat lower than in 2007, but was nevertheless at a satisfactory level for the year as a whole (see Chart 2.3). The most serious disruptions in 2008 occurred during the period from 17 to 24 October (see Section 2.2).

On 17 April 2009, Norges Bank implemented a new settlement system. The transition was successful. The new settlement system is described in a separate box.

2.1.2 Norwegian Interbank Clearing System (NICS)

Almost all payments in Norway are channelled through NICS before being settled. The well-functioning of NICS

is important to financial stability, and NICS is subject to authorisation pursuant to the Payment Systems Act. Norges Bank has authorised the NICS Operations Office to operate NICS, and supervises the system. BBS Infrastruktur, which is a subsidiary of BBS, operates NICS on commission from the NICS Operations Office. NICS is owned by the banks in Norway.

Payments channelled through NICS, are either sent for individual settlement in NBO or are gathered and netted, so that each bank has either a net debit position or a net credit vis-à-vis the other banks participating in the clearing. Card payments and giro payments are included in the settlement of ordinary customer payments in the retail clearing, where 143 banks take part. This clearing is settled twice a day. Payments under NOK 25m sent in SWIFT format⁷ are cleared in NICS and sent to Norges Bank for settlement three times a day.

When payments are netted, the banks need less liquidity than when they are settled individually. This reduction is referred to as the netting effect of the clearing. In 2008, the average daily turnover in the NICS retail clearing was NOK 73bn, while the sum of the net positions was NOK 9bn. In other words, the banks' liquidity requirements

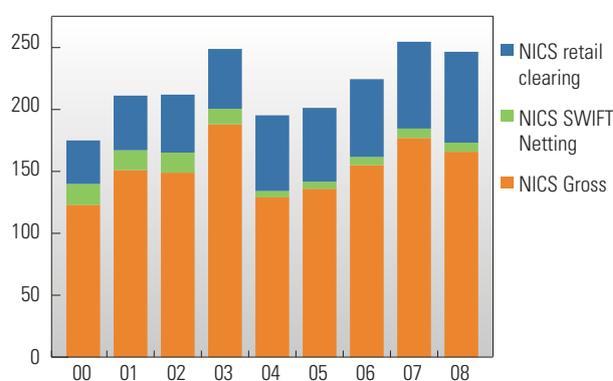
Chart 2.3 Availability in NBO during opening hours.¹ Monthly result. Per cent. 2005 – 2008



¹ 2005 – 2006: Availability for IT operations for NBO by ErgoGroup

Source: Norges Bank

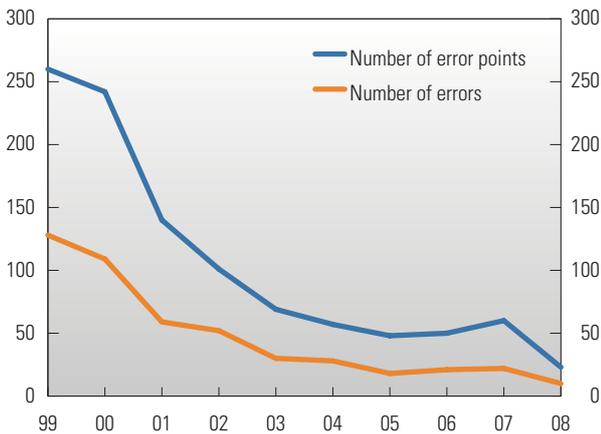
Chart 2.4 Turnover in NICS. Daily average. NOK billions. 2000 – 2008



Source: Norges Bank

⁷ Payment message sent according to the standard set by the Society for Worldwide Interbank Financial Telecommunication (SWIFT).

Chart 2.5 Disruptions of NICS operations. Number of errors and error points.¹ 1999 – 2008



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

were reduced by 88% (NOK 64bn) in the retail clearing. The value of transactions channelled through NICS and settled individually in Norges Bank amounted on average to NOK 166bn per day in 2008 (see Chart 2.4). This is somewhat lower than the previous year.

On the whole, NICS functioned smoothly in 2008. The number of events that affected or could have affected the operational stability of NICS was halved relative to 2006 and 2007 (see Chart 2.5). On some days with such disruptions of production, the settlement was delayed.

BBS Infrastruktur is gradually replacing the NICS technology platform. The purpose is to make the system more secure and more flexible while reducing costs. Transactions from payment terminals and ATMs were transferred to the new solution on 25 April 2008. The transition was successful. Transfer of the other transactions

Norges Bank's monitoring and supervision of the interbank systems

Norges Bank's responsibility for overseeing the interbank systems is laid down, among other places, in section 1 of the Norges Bank Act, which states that Norges Bank shall "promote an efficient payment system domestically as well as vis-à-vis other countries". An important part of Norges Bank's role involves ensuring compliance with international recommendations for interbank systems. The key recommendations in this area are the ten Core Principles issued by the Committee on Payment and Settlement Systems (CPSS) in 2001 (CPSS 2001). The Core Principles provide guidelines on how legal, financial and operational risk should be limited and on how best to ensure effi-

ciency, transparency and good management of the systems.

The Payment Systems Act assigns Norges Bank responsibility for the authorisation and supervision of Norwegian interbank systems. Among other things, the Act specifies requirements for the design of the interbank systems that are subject to authorisation, and gives Norges Bank the right to order changes. By means of supervision of the systems subject to authorisation, Norges Bank ensures compliance with the requirements of the Payment Systems Act. Norges Bank's own settlement system, NBO, is not subject to the requirements of the Payment Systems Act

concerning authorisation and supervision, but the system is nevertheless overseen in accordance with the international recommendations.

In the Annual Report on Payment Systems for 2006, NBO, NICS and DnB NOR's interbank systems were assessed in relation to the core principles for such systems. The main conclusion was that the systems maintained high quality. Attention was however drawn to a number of factors that could be improved. Several of these factors have since been improved. The systems are deemed to have a satisfactorily low level of risk.

in the retail clearing to the new platform is planned for the third quarter of 2009. Large transactions will be transferred in 2010. After the changes, transactions to be settled individually will be separated from transactions to be cleared according to their size and not on the basis of the format of the message.

2.1.3 DnB NOR as a private settlement bank

A private settlement bank is a bank that settles on behalf of other banks in the retail settlement in Norges Bank. Most banks in Norway use a private settlement bank. However, these banks constitute a small proportion of Norwegian banks measured according to assets (see Chart 2.6).

DnB NOR is the largest private settlement bank in Norway. DnB NOR's settlement system is regarded as important for the efficiency of the Norwegian payment system because many banks and bank customers may be affected if the system fails to function. Norges Bank has authorised DnB NOR to operate an interbank system pursuant to the Payment Systems Act, and supervises the system. At the end of 2008, 103 smaller banks used DnB NOR as their private settlement bank. The system had a gross turnover of NOK 70–110bn each month in 2008

(see Chart 2.7). The average daily turnover was NOK 4.3bn.

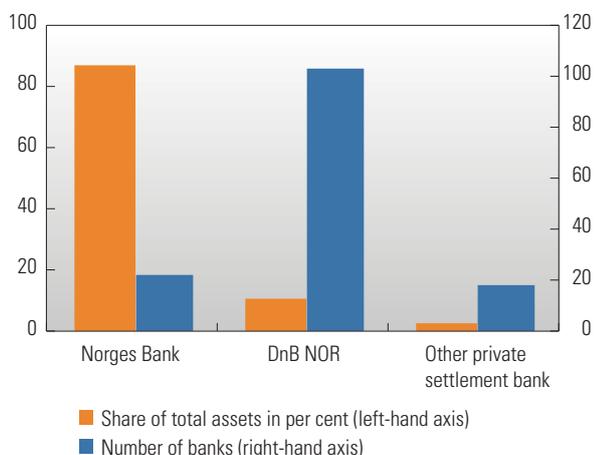
While Norges Bank provides its participants with credit against collateral, DnB NOR grants credit facilities on the basis of an assessment of the individual bank. Parts of the credit facilities may be set aside for use in the banks' settlement accounts in DnB NOR. The credit facilities associated with the settlement account increased from NOK 5.7bn at the end of 2007 to NOK 7bn at the end of 2008.

Private settlement banks can contribute to the overall efficiency of the payment system. A major reason for this is that the private settlement banks take over the obligations of their participating banks in the Norges Bank's retail settlement. If one of these banks has tight liquidity, this will not disturb the settlement in Norges Bank. Lesser disruptions in DnB NOR's interbank system have small consequences for the interbank systems as a whole.

2.1.4 The securities settlement (VPO)

The Norwegian Central Securities Depository (CSD), VPS, calculates payments for trading in shares, certificates

Chart 2.6 Norwegian banks by settlement bank. Share of total assets and number of banks. 2008



Source: Norges Bank

Chart 2.7 Monthly turnover in DnB NOR's interbank system. NOK billions. 2005 – 2008

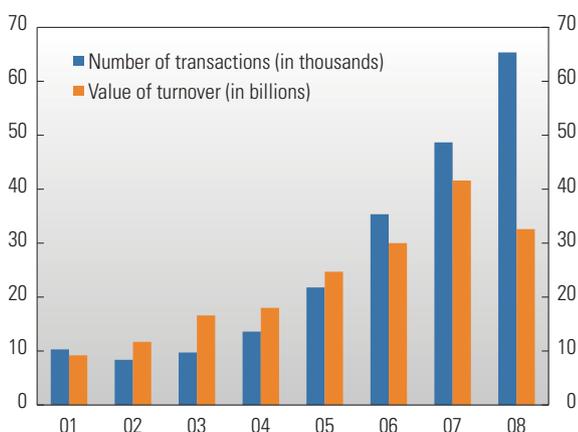


Source: DnB NOR

and bonds. VPS calculates the participants' positions in the securities settlement associated with both the securities and the payments for these. Settlement of the securities is carried out individually on a gross basis in VPS and the associated cash positions are settled net in NBO. Norges Bank follows international recommendations in the oversight of the securities settlement, but operation of the system is not subject to authorisation by Norges Bank. Kredittilsynet supervises the participants of VPO, and has approved the rules in VPO associated with the Payment Systems Act. In addition, VPS is authorised to operate as a CSD by the Ministry of Finance.

Most transactions in VPO are derived from trading on Oslo Børs. The amount of transactions on Oslo Børs has increased steadily in recent years. The value of the turnover has also increased, but fell from 2007 to 2008 (see Chart 2.8). Foreign investors accounted for approximately three-quarters of the value of trading in shares settled in the VPS settlement system in 2008. In 2008, the whole VPS system was available 99.9% of normal opening hours. The daily value of the settlements in NBO in connection with VPO was on average NOK 5bn after netting in 2008.

Chart 2.8 Number of transactions (thousands) and value of turnover (NOK billions) on Oslo Børs.¹ Daily average. 2001 – 2008



¹ Equity instruments, bonds and certificates

Source: Oslo Børs

Settlement of securities trades is generally carried out three days after a trade. In 2008, approximately 3% of the trades were not settled on the agreed date. This was usually because the seller failed to deliver the securities on time. A market and liquidity risk was thus inflicted on the participants of VPO. In the EU and the USA, it is usual that a central counterparty (CCP) is used between the parties in a stock trade, functioning as the seller vis-à-vis the buyer and as the buyer vis-à-vis the seller. If a participant fails to fulfil its obligations, the central counterparty will ensure that the parties receive delivery or payment as agreed. The market and liquidity risk associated with the settlement is thus reduced. The Nordic stock exchanges that participate in NASDAQ OMX plan to establish a central counterparty for equity instruments in October 2009. Oslo Børs plans to introduce a central counterparty model during the first quarter of 2010.

A working group including representatives from the banks, the brokers, VPS, Oslo Clearing⁸ and Norges Bank has proposed a new long-term solution for securities settlement. The group recommends that agreements be established ensuring that deposits in the participants' sub-accounts for VPO (see box on Norges Bank's new settlement system) can be used in settlement even if the account holder is placed under public administration. This will ensure that the settlement can also be carried out in such circumstances, in compliance with international recommendations. It is moreover the view of the group that, although VPO can still be based on a multilateral net settlement, it should also be possible to settle transactions on a gross basis. The working group also recommends that more daily net settlements should be carried out if there is a demand for this. These measures will reduce the level of risk in securities settlement.

On 17 July 2008, the European Central Bank (ECB) decided to implement a centralised securities settlement in Europe called TARGET2-Securities (T2S) in 2013. It is the view of the ECB that a common system will reduce the costs to the participants. If Norwegian market participants so wish, it may in the future be appropriate

⁸ Oslo Clearing is a central counterparty for financial derivatives and loan products.

Liquidity risk in gross and net settlements

If a participant in a settlement lacks liquidity, the effect on the other participants will vary according to whether net or gross settlement is adopted. Gross transactions tend to be large and, if such a transaction is dropped, this may create difficulties for the bank that was to receive the transfer. However, there would be no direct effects on other banks. In recent years, gross settlement has accounted for a major part of the amounts in settlements in Norway.

In a net settlement, the banks are more closely connected. All participants may be exposed to liquidity risk if a participant is not able to fulfil its obligations. There are two reasons for this. Firstly, such settlements will not be carried out in the

normal time if a bank lacks cover. Secondly, the positions of the other banks will be changed if a bank is withdrawn from a clearing. A bank may thus affect a number of banks if it has managed its liquidity poorly.

A different set of procedures has been established for situations with insufficient cover in the two largest net clearings that are settled in NBO, the NICS retail clearing and the NICS-SWIFT net clearing. In the NICS retail settlement, the banks settle positions derived from small payments between customers. If a bank lacks cover, and if the bank is unsuccessful in obtaining cover within the fixed time limits, the bank is withdrawn from the clearing. A new clearing is then carried out

without transactions to and from this the bank. This solution results in the banks receiving liquidity from the settlement some hours later than planned, and may also result in changes in some banks' positions in the settlement. In the NICS-SWIFT net settlement, the banks settle the claims deriving from medium-sized payments. A clearing without cover will be unwound and sent as individual transactions approximately one hour after the settlement was planned to have been carried out. This ensures settlement of all transactions that the banks have cover for. This reduces the banks' liquidity risk.

Norges Bank's new interbank settlement system

On 17 April 2009, Norges Bank implemented a new interbank settlement system. The new settlement system has the same primary functions as the old system. One of the main changes is that all payment orders are sent to the system via the international messaging system SWIFT or by means of a system resembling an internet banking application called NBO Online.

The account structure has also been changed. Each bank has a main account where all liquidity is gathered overnight. The banks have agreed that the main account shall

not be used to effect payment orders. In connection with the main account, the bank is given a loan account with borrowing facilities.

In addition to the main account and loan account, each bank has one or more subaccounts with mechanisms for efficient use of liquidity (including queue handling functions). There are three such subaccounts. One is general, and is used for all ordinary settlement transactions. At the start of the day, liquidity is transferred to this account. All the banks that participate in NBO have such an account. Banks that participate,

respectively, in the securities settlement and the currency settlement system CLS have their own subaccounts for this purpose. Transfer of liquidity to such accounts will replace the earmarking of the old system. At fixed intervals and finally at the end of the day, the liquidity will be transferred from the subaccounts back to the main account.

The banks pay for account maintenance and settlement services provided by Norges Bank. This income is intended to cover relevant costs incurred by Norges Bank in providing these services.

Continuous Linked Settlement (CLS)

When a foreign exchange trade is to be settled, one payment must be made in each of the currencies included in the trade. Traditionally, the two payments are settled individually, each in its own national payment system. When this form of settlement is adopted, a bank risks paying out the currency it is selling without receiving the currency it is buying. The bank thus undertakes a credit risk in connection with the settlement of the trade.

Continuous Linked Settlement (CLS) is a settlement system for foreign exchange trades whereby payment of the one currency is made dependent on delivery of the other. CLS achieves this by holding accounts in the central banks of all the countries that have currency that is settled in the system. The central banks have agreed on a period during the day (early in the morning Norwegian time) when they are open at the same time for payments to and from CLS' accounts. The set-

tlement itself is carried out in the CLS Bank in New York, and is dependent on both parties having paid the correct amount into the CLS' account in the central banks concerned. In this way, the CLS removes the credit risk associated with settlement of foreign exchange trades.

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

to settle Norwegian securities trades in NOK in this system. Norges Bank chairs a Norwegian consultative group that has evaluated the project and attended several open consultations. In a non-binding consultation in 2008, most securities depositories in Europe stated that they would participate in T2S on certain conditions. VPS prefers to await developments before making a decision.

2.1.5 The foreign exchange settlement system CLS

The Continuous Linked Settlement (CLS) provides settlement of foreign exchange trades in 17 currencies including NOK (see box). Two new currencies joined the CLS in May 2008, the Israeli shekel and the Mexican peso. The settlements are carried out trade by trade (gross), and the settlement of one part of the trade is dependent on the other part. There is thus no credit risk involved in this currency settlement. While trades are settled individually, payment obligations in each currency are netted. As a result of this, the banks must pay a much smaller amount than the value of the trades that are settled (see Chart 2.9).

Approximately 60 large international banks own and are members of the CLS. In addition, almost 4500 institutions, of these 320 banks, are third-party participants of the CLS. This entails that they participate through a settlement member which executes the incoming payments and accepts the outgoing payments on their behalf.

Four banks in Norway participate in the CLS. They execute incoming and receive outgoing payments in NOK on the CLS account in Norges Bank. They do this on behalf of themselves and a number of foreign CLS participants. The size of the turnover makes the CLS important to financial stability. Norges Bank oversees the CLS in cooperation with the other central banks that have currency that is settled in the system.

The turnover in the CLS increased in 2008. The total turnover typically lies between USD 3 000bn and USD 4 500bn each day. The largest growth is in settlement of relatively small trades. During 2008, new daily records were set both for the number of transactions and settlement value. The high volumes were handled without any serious problems. The increase in traffic may indicate that the participants have given priority to low settlement risk in a situation where they have become more uncertain of their counterparties. The number of participants increased in 2008, and the CLS reports increased interest in its services by banks and other participants.

Since January 2008, credit derivatives have also been settled through the CLS. The handling was tested during the financial turbulence with positive results. Participants who had sold credit protection for bonds issued by Lehman Brothers and the housing loan institutions Freddie Mac and Fannie Mae among others had extremely large gross debt items. The positions were netted bilaterally prior to the settlement, but participants that settled via the CLS were able to achieve further netting effects. Figures from the CLS indicate rather small effects on settlement volume and incoming payments on the days that these debt items were settled.

Chart 2.9 Value of daily settlement in CLS involving NOK and incoming and outgoing payments in NOK. Monthly average. Billions NOK. 2005 – 2008



Source: Norges Bank

Requirements regarding collateral for loans

Norges Bank provides the banks with loans with a fixed maturity (F-loans) and intraday and overnight loans (D-loans). Intraday D-loans are used to enable the banks to obtain cover for their debts in the payment settlements. Such loans are interest-free if they are repaid before the end of the day. If the loan is not repaid, it becomes interest-bearing. F-loans are used to even out the fluctuations in the banks' liquidity. F-loans normally run from two days to a little over a month. Since last autumn, F-loans have also been granted with several years' maturity.

Banks with accounts in Norges Bank are granted access to loans against collateral in the form of approved securities. The same collateral requirements apply to D-loans and F-loans.

As collateral, Norges Bank approves securities issued by governments and municipalities and by private enterprises. Norges Bank eased the requirements regarding collateral for loans in connection with the financial turbulence in order to increase

the banks' borrowing facility in the central bank. The rules have been temporarily made more liberal, particularly for Norwegian securities:

- The requirement regarding the minimum outstanding volume of NOK 300m for securities issued in NOK by private enterprises has been removed.
- The requirement regarding stock exchange listing for Norwegian private issuers has been removed.
- The requirement regarding credit rating has been removed for bonds issued by all Norwegian private enterprises (previously, only banks and credit enterprises owned by banks were exempt from the requirement).
- The requirement that money market funds should only invest in securities that can be approved according to Norges Bank's rules has been removed.
- Units in money market funds will not be included in the quota for bank bonds even if the fund invests in bonds issued by Norwegian banks or credit enterprises.

The value of securities that the banks had provided as collateral increased from NOK 174bn to NOK 266bn during 2008 (see Chart 1). For a period, the value exceeded NOK 300bn.

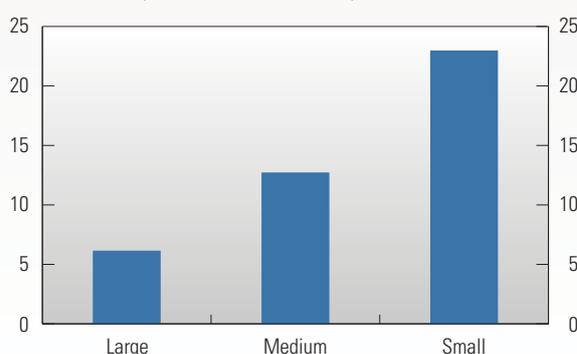
The growth in the value of pledged securities is primarily a result of the banks pledging of an increased volume of previously approved securities. Only a small part of the increase (NOK 16bn) is derived from securities that would not have been approved according to the previous rules. This is partly because the amendments to the rules applied mainly to Norwegian securities. The largest banks primarily own securities with foreign issuers. However, for small banks, amendments of the rules have played an important role. The small banks have secured more than 20% of their borrowing facility with collateral approved pursuant to the temporary rules (see Chart 2). Some small banks have secured their whole borrowing facility with securities approved only pursuant to the temporary rules.

Chart 1 Value of securities pledged as collateral. End of month. NOK billions. 2006 – 2008



Source: Norges Bank

Chart 2 Share of collateral approved pursuant to the temporary rules. Banks ranked by size.¹ Per cent. February 2009



¹ Large banks are defined as banks with total assets greater than NOK 50bn. Small banks have total assets less than NOK 10bn. Total assets at the end of 2008
Source: Norges Bank

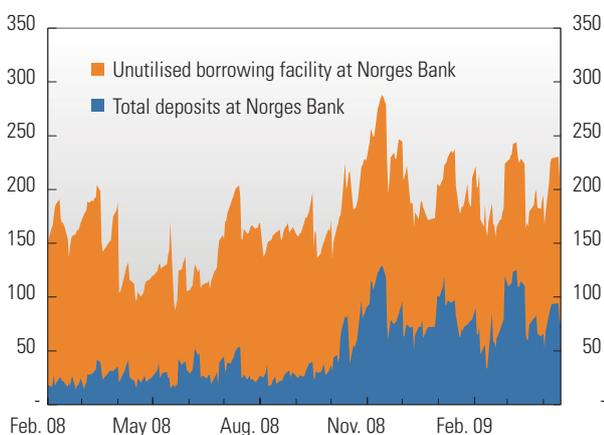
2.2 The interbank systems during the financial turbulence

When financial markets are affected by turbulence and uncertainty, it becomes particularly clear how important it is that the interbank systems are structured so that they contribute as little as possible to the spread of liquidity and solvency problems. To date, the Norwegian infrastructure has functioned well during the financial turbulence. Operations have been stable, and the banks have continued using the interbank systems as normal. The turbulence has nevertheless affected key risks in the settlements. This is discussed further in this part of the report.

2.2.1 Changes in liquidity risk in settlements

Liquidity risk in settlements is the risk that a participant will not be able to fulfil its obligations on time. The banks plan how much liquidity they will need during the day and in the longer term. If a bank's liquidity is weakened so much that it is unable to meet its commitments, this may lead other banks receiving less liquidity than expected.

Chart 2.10 Banks' total deposits and unutilised borrowing facility at Norges Bank. NOK billions. 1 Feb. 08 – 16 Apr. 09



Source: Norges Bank

The risk that a counterparty will not fulfil its obligations on time has increased during the financial turbulence. This results in increased liquidity risk. The banks have been uncertain of both their own liquidity situation and that of their counterparties. They have therefore wished to have more liquidity available for the settlements in Norges Bank.

The banks' available liquidity in NBO is determined by their deposits and borrowing facility in Norges Bank. Deposits are affected by the bank's own liquidity management and transactions from other banks. The banks' opportunity to borrow from other banks plays an important role in liquidity management. The amount that the banks can borrow from Norges Bank depends on the value of the securities they have pledged as collateral and the amount they have already borrowed.

Increased available liquidity in Norges Bank

In autumn 2008, the banks increased their total available liquidity in Norges Bank (see Chart 2.10). Norges Bank implemented measures to facilitate this. Norges Bank has offered long-term and large F-loans. This has motivated the banks to increase the amount of pledged collateral. At the same time, rule changes have allowed the banks to use a larger part of their securities as collateral for loans in the central bank (see box on collateral requirements for loans). Many banks, but not all, have increased their liquidity buffers⁹ in Norges Bank.

A number of banks reduced the amount of pledged securities towards the end of 2008. This resulted in a reduction in the banks' total available liquidity. Some banks did this in order to be able to pledge a larger proportion of their securities in other central banks in order to increase their borrowing facilities there.

Banks that use the Scandinavian Cash Pool (SCP)¹⁰, can

⁹ Liquidity buffer is defined as the amount of liquidity available to the banks for the settlement in excess of what they maximally need throughout the day. If the buffer is large, it is less likely that delayed incoming payments or unforeseen outgoing payments will be able to render the bank incapable of meeting its obligations on time than if the buffer is small.

¹⁰ The Scandinavian Cash Pool (SCP) is an arrangement whereby a bank with accounts in several of the Scandinavian central banks can borrow from a central bank throughout the day collateralised by deposits that the bank/banking group has in one of the other central banks.

transfer liquidity between the Scandinavian central banks throughout the day. This arrangement provides the participating banks with more flexible liquidity management. The banks with accounts in Norges Bank obtain more liquidity through the SCP than they part with (see Chart 2.11). However, in 2008, the arrangement has been used more often than before to transfer liquidity from accounts in Norges Bank to accounts in the other Scandinavian central banks.

Higher structural liquidity helped banks

Structural liquidity is the banks' collective deposit or loan position in Norges Bank as it would have been if Norges Bank had not used its liquidity policy instruments (e.g. F-loans). When the structural liquidity is low, the banks need large loans from Norges Bank to provide satisfactory liquidity levels.

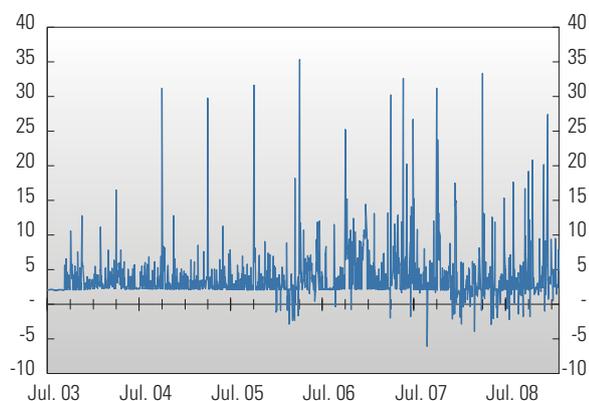
Structural liquidity increases when the Government, which has its account in Norges Bank, pays out money or when Norges Bank sells NOK and purchases foreign exchange. It is reduced by incoming payments to the Government or when Norges Bank purchases NOK. The largest payments to the state in recent years have been associated with the payment of petroleum tax. This tax has been paid

twice a year, and has resulted in low structural liquidity after it falls due. In spring 2008, the payment was particularly large owing to the high oil prices. Chart 2.12 shows the large fall in structural liquidity on 1 April 2008, when the petroleum tax was paid. A large payment of tax on 15 May led to further reduction. Low structural liquidity resulted in major borrowing needs in spring 2008. Some banks stated that they had problems in obtaining sufficient collateral to borrow as much as they could have wanted.¹¹

In 2008, it was decided that the number of due dates per year for payment of petroleum tax would be changed from two to six.¹² The last half-yearly payment was on 1 April 2008. The first due date in the new arrangement was 1 August. As a result of the change, the fluctuations in structural liquidity were reduced, and structural liquidity was higher in October and November 2008 than it would have been if the change had not been made. In Chart 2.12 the blue line shows structural liquidity as it was and the orange line shows how it would have been without the change.

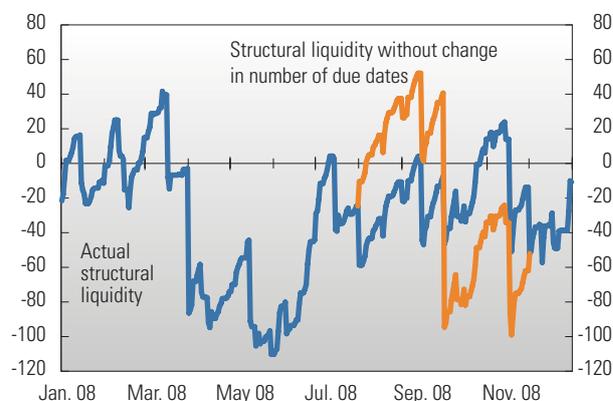
Following the bankruptcy of Lehman Brothers on 15 September 2008, the flow of interbank liquidity was impaired. It became more difficult to obtain funding in

Chart 2.11 Use of Scandinavian Cash Pool. Net supply to the banks' accounts at Norges Bank. NOK billions. Jul. 03 – Jan. 09



Source: Norges Bank

Chart 2.12 Structural liquidity. Actual and without change in number of due dates for petroleum tax. NOK billions. 2008



Source: Norges Bank

¹¹ At the beginning of June 2008, the banks had to borrow a total of NOK 110bn in order to come into deposit position at all.

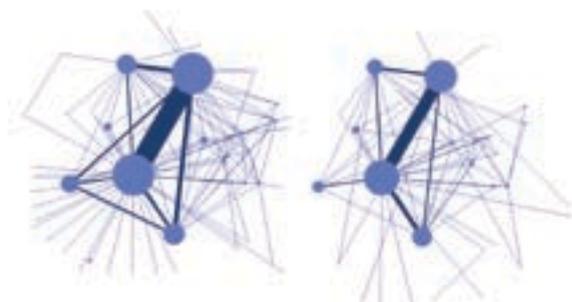
¹² See Ministry of Finance (2008).

the capital market, and the loans that could be obtained had a high rate of interest. The banks need more liquidity for settlements when they are less efficient in distributing liquidity among themselves.

A combination of low structural liquidity and a considerable need for liquidity by the banks would have required very large loans from Norges Bank. If the crisis in autumn 2008 had occurred some months earlier or if the rules for payment of petroleum tax had not been changed, the need for F-loans from Norges Bank would have been much greater. Lower structural liquidity would have resulted in less liquidity for settlements unless the banks had counteracted the effect by increasing their borrowing facility in Norges Bank. Some banks might have had difficulty in obtaining sufficient liquidity for the settlements, and the liquidity risk would have been greater than it turned out to be. The change from two to six due dates for petroleum tax proved to be even more important than could have been anticipated when the change was adopted.

The banks' liquidity throughout the day is also dependent on the size of incoming and outgoing payments, and on the order in which they are made. The change in the

Chart 2.13 Payment flows between the banks in NBO. 1 Apr. 08 (left) and 1 Aug. 08 (right)¹



¹ For an explanation of this chart, see the discussion of studies of payment flows between the banks

Source: Norges Bank

Studies of interbank payment flows

Transactions that are settled in the payment systems include customer payments, interbank loans and payments for foreign exchange and securities trading. Studies of the pattern of the transactions, their value and time of transmission (topology studies), provide insight into the risk and stability of the interbank systems. They can also improve our understanding of how the systems may be affected by financial turbulence and how problems can spread within them. Several recent studies view the banks as participants of a payment network. They apply theory and computer tools used in studies of other types of network, such as power supply networks and the Internet. Norges Bank studies the network topology in the NBO and of the market for overnight loans. This enables an improved understanding of the interbank market in normal situations and in the light of the financial turbulence.

This report draws on some of the results from Norges Bank's studies of network topology. In Charts 2.13 and 2.17, the banks are shown as nodes. The thicker the line connecting them, the greater is the value of payments between two banks. The size of the nodes depends on the total value of payments to and from the bank.

¹ See for example Bech and Rørdam (2008) and Becher, Millard and Soramäki (2008).

arrangement for payment of petroleum tax reduced the size of payments between the banks on the due date. Chart 2.13 shows the difference between 1 April 2008, when there were still two due dates, and 1 August 2008, the first due date following the transition to six due dates. After the change, the value of the transactions between the major banks was halved. The change increased the liquidity buffers for banks with large petroleum tax payments, thus reducing the liquidity risk.

Banks postponed their payments

Autumn 2008 saw an increase in the number of payments settled late in NBO (see Chart 2.14). A bank that receives payments as before while sending its own payments later improves its liquidity through the day at the expense of its counterparties.

A bank can change its liquidity need by changing the order of the payments that are sent and received in the settlement. Incoming payments that are received early in the day provide liquidity for outgoing payments. If it is necessary to pay out a large amount before receiving incoming payments, the liquidity must be derived from deposits and loans in the settlement bank. The uncertainty regarding whether payments will actually be received increases when

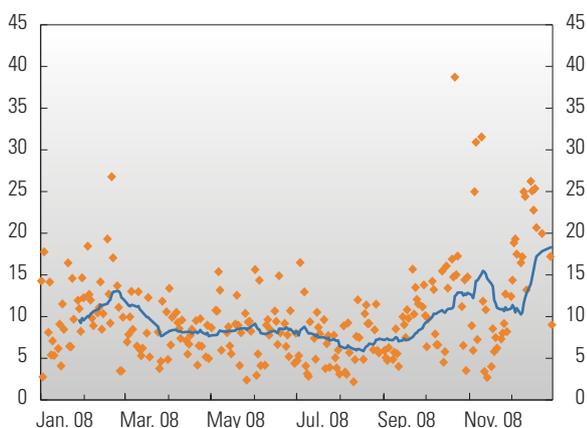
are received later in the day. In NBO, an average of 90% of gross payments (in terms of value) have in recent years been settled before 14.00 hours. Most payments are settled between 12.00 hours and 14.00 hours (see Chart 2.15). This is because the banks in Norway have agreed that gross transactions shall be sent to NBO at about 13.00 hours.

At the end of 2008, almost 20% of payments in terms of value were settled after 14.00 hours. Some banks have made little change in their payment pattern, while others have begun transferring outgoing payments later than they used to. For the system as a whole, the liquidity risk in the settlements increases when there are more late payments.

The banks can also delay outgoing payments in order to reduce their net claims against a bank they do not have confidence in. They would then also reduce the risk of loss if the recipient bank were to be placed under administration.

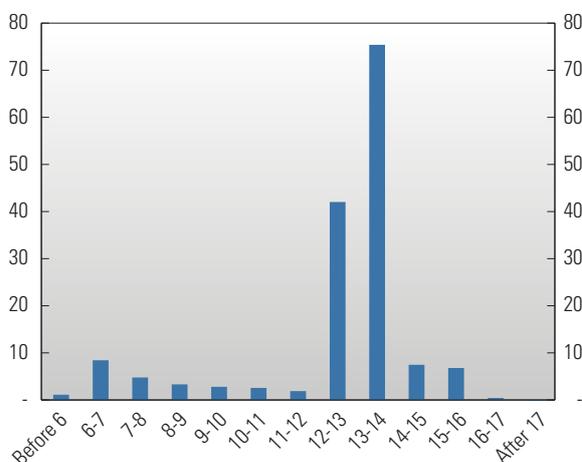
In some countries, mechanisms have been established in the settlement systems to discourage the banks from delaying too many payments. Mechanisms may, for example, be implemented through the price structure of the systems or by requiring a certain share of payments to

Chart 2.14 Payments made after 14.00 hours in NBO. Per cent of value. Daily observations and 20-day moving average. 2008



Source: Norges Bank

Chart 2.15 Average amounts during time interval. NOK billions. Jan. 07 – Dec. 08



Source: Norges Bank

be settled by a specific time. Such mechanisms are likely to have less effect in periods of tight liquidity and/or high counterparty risk than during more normal periods.

2.2.2 The mechanisms designed to limit credit risk have functioned

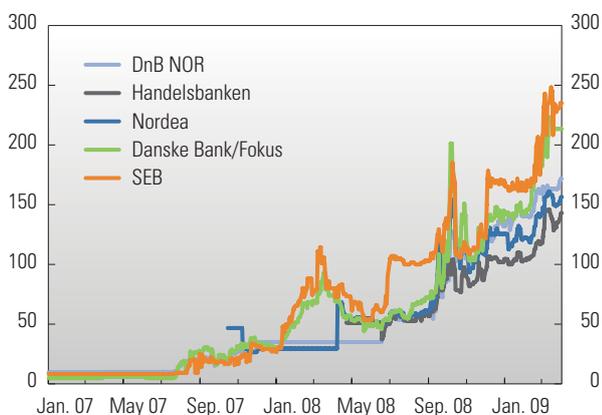
Credit risk is the risk that a counterparty will neither be able to settle its debt when it falls due nor later. The market has assessed the credit risk to have increased during the financial turbulence. In Chart 2.16, this is illustrated by price trends for insurance against default on bank debt by Nordic banks (CDS prices).

The banks' credit risk arises in different ways in relation to one-way and two-way payments. The measures appropriate for reducing the risk differ between the two payment types.

Credit risk associated with one-way payments

The credit risk associated with one-way payments¹³ depends on when the banks credit their customers for incoming payments. When a customer of one bank sends a payment to a customer of another bank, the payer's bank acquires a debt to the payee's bank. If the payee's bank

Chart 2.16 Price of insurance against credit risk for selected Scandinavian banks. Basis points. Daily figures. Jan. 07 – Apr. 09



Source: Bloomberg

¹³ One-way payments refer to transactions that do not depend on another interbank transfer.

credits the payee before it receives settlement from the payer's bank, it assumes a credit risk. However, such credit risk will not arise if the payee is credited after the settlement between the banks.

In Norway, the banks have designed solutions that provide for crediting of their customers after the interbank settlement. In some cases, customers may still be credited prior to the settlement between the banks, but this only applies to a small proportion of the payments (in terms of value). Norwegian banks therefore incur very little credit risk by participating in the settlements.

The amount of payments in Norges Bank's Settlement System was not affected by the turbulence in the financial markets in autumn 2008. If there had been credit risk of significance in the settlement, a change in banks' behaviour could have been expected.

Credit risk associated with two-way payments

When settling securities and foreign exchange trades, both parties shall both send and receive a transaction (securities for money and currency for currency). The credit risk is reduced or eliminated if the systems are designed so that a transaction can only be carried out contingent on the other.

The securities settlement in Norway is designed in such a way that securities are only delivered against payment. A participant of the settlement therefore runs no risk of parting with a security without receiving money for it, and vice versa. The settlement thus involves no credit risk, but there can be considerable market and liquidity risk.¹⁴

The risk associated with settlement of foreign exchange trades depends on the settlement method. Most of the turnover in the Norwegian foreign exchange market is settled through CLS (see part 2.1). In CLS, payments are contingent on each other, and there is therefore no risk that the principal will be lost. However, many foreign

¹⁴ Market risk is risk associated with changes in market prices. A bank will, for example, lose money if an agreed share purchase lapses, and the share must be replaced at a higher price than it was first traded at.

Winding up of Kaupthing's branch in Norway

Kaupthing's branch in Norway participated in the settlement in Norges Bank. The bank had loans in Norges Bank when it was placed under administration in Iceland. The current legislation did not allow the Norwegian authorities to place the Norwegian branch under public administration. In order to prevent the bank from continuing its operations on the basis of increased loans from Norges Bank, the bank's borrowing facility at the central bank was suspended on 9 October. The system that clears payments in Norway (NICS) implemented measures to ensure that no further payments from the bank entered the payment system. These measures helped to reduce the risk for the other banks that participate in the clearing. The consequences for customers of Kaupthing included

that payments by card and giro could no longer be made.

The bank was already in a borrowing position in Norges Bank and, when the afternoon retail settlement on 9 October resulted in a small debit, the settlement could not be carried out. The NICS Operations Office ensured that Kaupthing was provided with an additional payment in the retail clearing, which resulted in a zero balance for its position in the clearing. The transfer came from an account that Kaupthing had in another private bank. The clearing could then be sent for settlement in Norges Bank. The retail settlement was carried out with a one-and-a-half-hour delay. The retail settlement positions of the other banks were not altered. The con-

sequences for their liquidity were minimal.

The situation was solved in a manner that only to a small extent involved spread of liquidity risk and problems for the payment system. However, the incident showed the importance of clear rules and procedures. Norges Bank and the NICS Operations Office will examine ways of handling such situations in the future.

Pursuant to a new provision from the Ministry of Finance, the branch was placed under public administration on 12 October, and has now been wound up. The value of the collateral was greater than the loan from Norges Bank, and the excess funds have now been transferred to the bankrupt estate.

exchange trades are still settled outside CLS, and with credit risk. Settlement of foreign exchange trades with credit risk is the largest source of credit risk the banks expose themselves to in payment settlements. The credit risk associated with settlement of foreign exchange trades can be reduced if more trades may be settled through CLS.

During the turbulence, banks, both in Norway and abroad, have become more aware of the credit risk associated with settlement of foreign exchange trades outside CLS. To limit this risk some banks have delayed paying the currency sold until receiving the currency purchased. This has resulted in settlement delays. In cases where both parties have been withholding payments, the settlement has not been carried out. This shows that minimisation of credit risk in the settlements is important not only to reduce the risk of loss, but also to ensure that the foreign exchange market functions well in turbulent times.

2.2.3 Operational stability more important in a nervous market

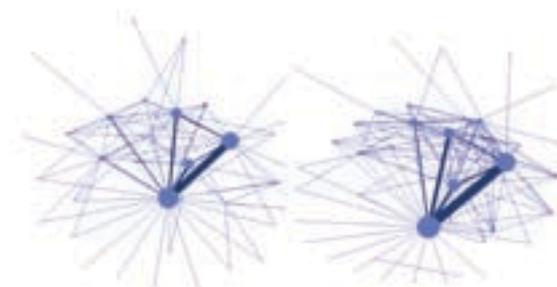
Operational risk is the risk that a hardware or software problem, a human error or other disturbance of operations may result in financial exposures and possible losses. This is an important risk in the interbank system.

It may be difficult for the market participants to be certain whether a payment problem at a bank is really of a technical nature or is due to liquidity or solvency problems. This may result in counterparties withholding payments or being reluctant to trade with or lend money to the bank. Experience from previous years shows that banks did not necessarily withhold payments to individual banks affected by a technical problem. However, banks may respond differently when they have reduced confidence in each other. When counterparty risk is assessed as high, it may more easily be suspected that what is asserted to be a technical problem is really a financial problem. It thus becomes even more important for the banks to ensure stable and secure operation of their systems when the market is nervous. It also becomes more important for the banks to communicate rapidly and

clearly with their counterparties if problems arise.

Operational problems may also arise in the settlement system itself. The most serious disruptions of the settlement system in Norway in 2008 occurred during the period from 17 to 24 October, when communications between NBO and NICS were disrupted. Settlements were delayed on three days during this period. Contingency solutions enabled the banks to send SWIFT transactions individually (gross) for settlement in NBO. Contingency routines were also put into service for information exchange with the banks. Chart 2.17 shows much higher activity in the gross settlement on 24 October 2008 than on a normal day (here illustrated by 1 July 2008). Contingency routines made it possible to carry out all the settlements. However, since transactions that would normally be cleared were settled individually the banks experienced a need for greater liquidity than expected. All the banks had nevertheless sufficient liquidity for the settlement. If this had occurred on a day when one or more banks had low liquidity buffers, some banks might have had difficulty in sending their payments on time.

Chart 2.17 Payment flows between the banks in NBO. 1 Jul. 08 (left) and 24 Oct. 08 (right)¹



¹ For an explanation of the chart, see the discussion of studies of payment flows

Source: Norges Bank

2.2.4 Risk associated with settlement via other banks

Banks can arrange for other banks to settle for them in systems where they do not participate directly themselves. Most Norwegian banks settle their customer payments with a private settlement bank, cf. Part 2.1. Furthermore, banks use correspondent banks when settling trades in currencies whose settlement systems they do not participate in themselves. Settlement agents too play an important role in the Norwegian securities settlement.

When banks are in a customer-agent relationship to one another, they are often exposed to each other. If a customer bank has a deposit in an agent bank, the customer bank has a credit risk and a liquidity risk vis-à-vis the agent bank. Conversely, the agent bank is exposed to the customer bank if the customer bank has a loan from the agent bank. Such loans may arise when the agent bank makes payments on behalf of the customer bank. Agent banks are also exposed to liquidity and market risk when they guarantee for future settlements on behalf of the customer bank. The increased likelihood of counterparties experiencing financial difficulties has increased the risks associated with such exposures and guarantees.

The agent banks' credit risk stems from the fact that they do not normally demand collateral for loans. Instead, they evaluate the creditworthiness and set exposure limits for each customer bank. An agent bank can reduce or discontinue the drawing rights of a customer bank if it finds that the credit risk has become too great. This may make it difficult for the customer bank to meet its obligations on time.

Liquidity has become a scarcer resource during the financial turbulence. If an agent bank has little liquidity and borrowing rates are high, it may reduce the credit available to customer banks or increase the price of such credit. If an agent bank reduces the customer banks' borrowing facility, more banks may consider participating directly in settlements in the central bank. Norges Bank requires participants to have sufficient deposits or

borrowing facility to carry out settlements. The requirement regarding good liquidity management may therefore increase for banks that switch from settlement in private banks to settlement in Norges Bank.

In order to ensure efficient settlement in the future, banks that use agent banks should be prepared for changes in the terms of or access to credit.

In 2008, it was revealed that the rules for securities settlement in Norway are not completely clear. This mainly applies to the obligations of settlement agents. Among other things, settlement agents settle trades on behalf of remote members. Remote members are participants of the Oslo Stock Exchange that are not established in Norway.¹⁵ The US investment bank Lehman Brothers was a remote member which used DnB NOR as a settlement agent. Following the bankruptcy of Lehman Brothers, VPS and DnB NOR were in disagreement concerning interpretation of the rules of VPS. DnB NOR covered Lehman's cash obligations in VPO where Lehman had bought securities. The bank however did not deliver securities on behalf of Lehman as, in the view of VPS, it was obliged to do. When Lehman's activities were wound up, approximately 800 trades remained unsettled because the securities were not delivered.

This disagreement shows the importance of clear rules. The systems must be arranged in such a way that the participants know in advance what will happen in the event of bankruptcy. It is important that the risks are known and understood, with respect both to the individual settlement agent and to the other participants. If participants do not receive the expected securities or must purchase or sell the securities at other rates than expected, the market and liquidity risk may be considerable. VPS is currently cooperating with banks and brokers on amendments to the rules in order to clarify the rights and obligations of the participants.

¹⁵ Of 61 members of Oslo Børs, 38 are foreign members. These account for a large part of the trade volume.

Central counterparties for credit derivatives

Lenders can insure themselves against credit events at a borrower by purchasing an insurance often referred to as a credit derivative. A credit event may for example be bankruptcy, default or restructuring. Most credit derivatives are so-called "Credit Default Swaps" (abbreviated CDS). If an event arises that is covered by the CDS agreement, the seller pays the value of the underlying debt instrument less the amount covered by the borrower.

Trading in CDS contracts has grown considerably in recent years. The contracts are not traded only to secure claims, but also to speculate on CDS price trends. According to the Bank for International Settlements (BIS 2009), the outstanding nominal value of CDS contracts was almost USD 60 000bn in June 2008. This involved a trebling in two years. However, the value has fallen sharply owing to the recent financial turbulence.

It has traditionally been difficult to acquire an overview of the market

for credit derivatives. CDSs are traded bilaterally in the so-called "over the counter" market (OTC market) and not in an organised market place. Some settlement functions were standardised, and it became easier to gather statistics when the Depository Trust & Clearing Corporation (DTCC) established Deriv/Serv in 2006. Deriv/Serv supplies automation solutions for contracts in the OTC market and gathers data from the trades.

When several large financial institutions found themselves in difficulties in autumn 2008, the risk of contagion between the market for CDSs and other markets became clearer. Buyers of credit insurance were worried that sellers of CDSs and the borrower would go bankrupt at the same time. It became very difficult to sell CDSs owing to the lack of information about the degree of exposure of the largest CDS sellers.

The experiences of the financial turbulence have encouraged the indus-

try and the authorities in industrialised countries to make greater efforts to standardise contracts and settlement of credit derivatives. The most important measure involves establishment of central counterparties for credit derivatives. A central counterparty is used between the parties in a trade, functioning as the seller vis-à-vis the buyer and as the buyer vis-à-vis the seller. This reduces the counterparty risk of the participants vis-à-vis each other. A central counterparty is furthermore able to clear the participants' positions in relation to each other, thus reducing both margin payments and any payment flows between the participants in the case of credit events. Both in the EU and in the USA, central counterparties for credit derivatives are now being established. In the EU, it appears that the authorities have gained acceptance for their view that contracts entered into in the EU shall use a central counterparty established in an EU Member State (European Commission 2009).

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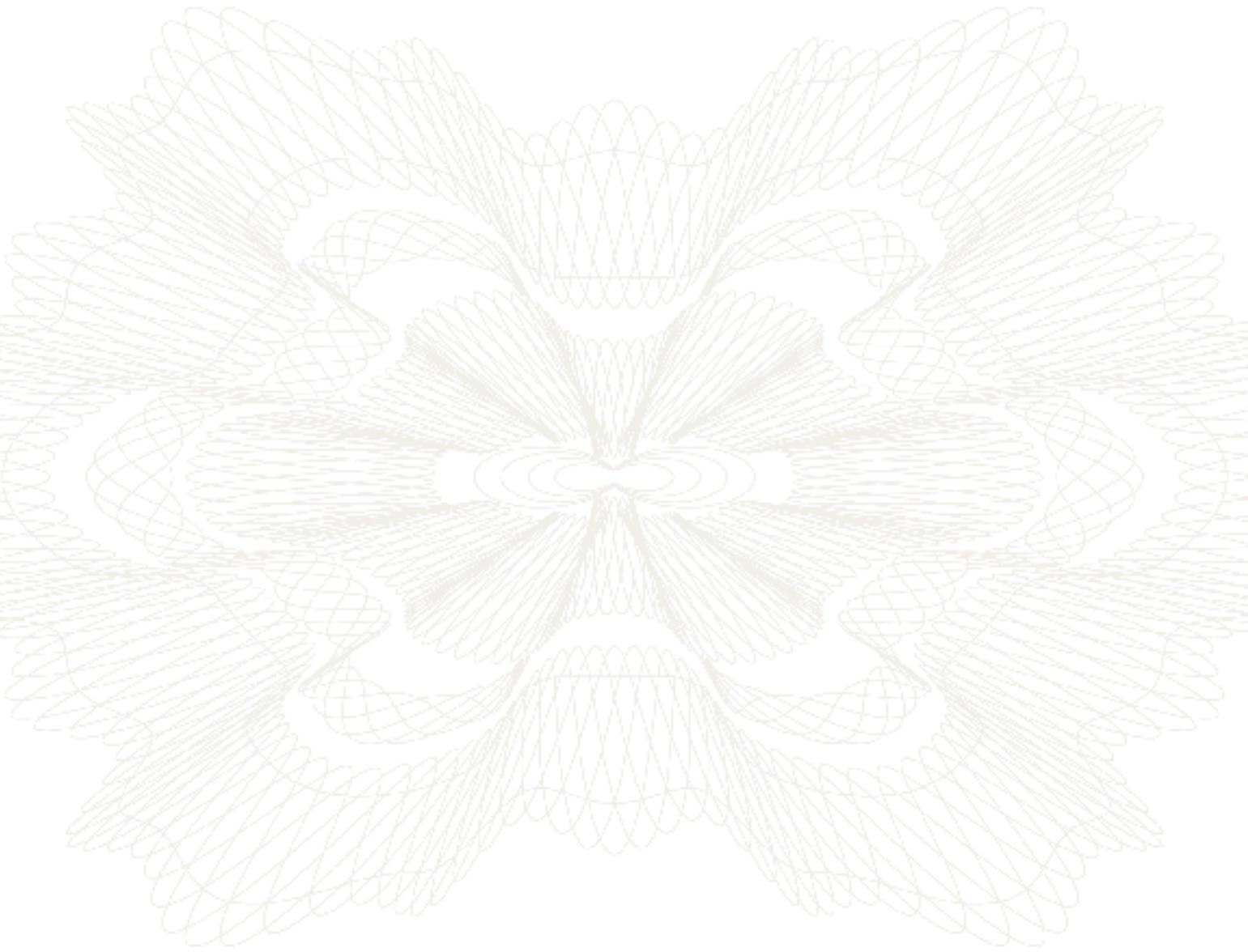
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General data

Table 1: Basic statistical data for Norway

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Population (per 1 Jan., million) | 4,45 | 4,48 | 4,50 | 4,52 | 4,55 | 4,58 | 4,61 | 4,64 | 4,68 | 4,73 |
| GDP, market value (NOK billion) | 1 240,43 | 1 481,24 | 1 536,89 | 1 532,31 | 1 593,83 | 1 743,04 | 1 945,72 | 2 159,57 | 2 277,11 | 2 537,86 |
| Mainland GDP, market value (NOK billion) | 1 045,34 | 1 113,89 | 1 179,59 | 1 224,64 | 1 274,83 | 1 355,31 | 1 451,13 | 1 580,67 | 1 724,12 | 1 842,52 |
| GDP per capita (NOK thousand) | 572,22 | 613,90 | 640,83 | 669,72 | 709,58 | 754,22 | 792,53 | 846,78 | 903,82 | 951,54 |
| 1 USD in NOK (year-end) | 8,04 | 8,85 | 9,01 | 6,97 | 6,68 | 6,04 | 6,77 | 6,26 | 5,41 | 7,00 |
| 1 euro in NOK (year-end. ECU to end-1998) | 8,08 | 8,23 | 7,97 | 7,29 | 8,42 | 8,24 | 7,99 | 8,24 | 7,96 | 9,87 |

Table 2: Technological infrastructure in Norway

| | 1999 | 2000 | 2001 (July) | 2002 (July) | 2003 (July) | 2004 (July) | 2005 (July) | 2006 (July) | 2007 (July) | 2008 (July) |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Fixed network telephone subscribers | 2 445 734 | 2 400 785 | 2 362 625 | 2 316 556 | 2 268 183 | 2 205 902 | 2 147 998 | 2 084 456 | 2 030 282 | 1 944 935 |
| PSTN | 1 913 657 | 1 682 603 | 1 603 525 | 1 496 119 | 1 445 236 | 1 394 088 | 1 345 719 | 1 224 626 | 1 115 140 | 1 029 242 |
| ISDN | 532 077 | 703 843 | 741 600 | 800 451 | 798 751 | 768 785 | 682 742 | 564 428 | 477 092 | 415 157 |
| Cable TV network telephone subscribers | : | 14 325 | 17 500 | 19 986 | 23 301 | 23 155 | 22 037 | 16 332 | 11 819 | 8 583 |
| Other types of fixed network links | | 14 | : | : | 895 | 19 875 | 97 500 | 279 070 | 426 231 | 491 953 |
| Mobile telephone subscribers | 2 744 793 | 3 339 936 | 3 411 962 | 3 699 471 | 3 869 792 | 4 295 042 | 4 615 337 | 4 726 301 | 5 019 285 | 5 082 141 |
| Broadband subscribers | | | 44 852 | 136 153 | 280 111 | 517 148 | 835 695 | 1 126 921 | 1 350 302 | 1 524 006 |

Settlement media in Norway

Table 3: Settlement media used by the public (at year-end, in NOK million)

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|--|----------------|----------------|----------------|----------------|----------------|----------------|------------------|------------------|------------------|------------------|
| M1 + other short-term deposits (M2) | 683 853 | 753 269 | 818 859 | 882 914 | 904 217 | 972 014 | 1 085 330 | 1 233 589 | 1 440 205 | 1 494 944 |
| Narrow money supply (M1) | 342 362 | 370 378 | 384 631 | 399 711 | 427 689 | 472 058 | 552 246 | 679 343 | 760 448 | 736 719 |
| Banknotes and coins | 43 366 | 42 523 | 42 038 | 40 282 | 41 685 | 43 340 | 46 530 | 48 247 | 49 543 | 49 133 |
| Deposits in current accounts | 298 996 | 327 855 | 342 593 | 359 429 | 386 004 | 428 718 | 505 716 | 631 096 | 710 905 | 687 586 |
| Other deposits | 295 820 | 326 350 | 370 171 | 409 704 | 407 457 | 423 185 | 435 483 | 473 108 | 559 351 | 657 065 |
| Certificates of deposit + units in money market funds | 45 671 | 56 541 | 64 057 | 73 499 | 69 071 | 76 771 | 97 601 | 81 138 | 120 406 | 101 160 |

Table 4: Settlement media used by banks (in NOK million)

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Cash holdings, annual average | 4 519 | 4 431 | 4 817 | 4 675 | 4 409 | 4 457 | 4 960 | 6 198 | 6 071 | 5 902 |
| Sight deposits, annual average | 8 016 | 9 233 | 11 804 | 15 647 | 24 690 | 21 337 | 28 666 | 24 536 | 24 867 | 97 647 |
| Lending (F-loans + D-loans), annual average | 4 385 | 5 104 | 13 356 | 538 | 2 978 | 18 788 | 14 694 | 34 411 | 46 670 | 67 515 |
| Deposits from money-holding sector, annual average | 18 538 | 18 173 | 20 420 | 16 737 | 23 148 | 23 897 | 22 723 | 28 605 | 41 601 | 56 452 |

Table 5: Banknotes and coins. Annual average (in NOK million)

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Total | 43 837 | 43 571 | 42 947 | 41 767 | 41 562 | 43 728 | 45 887 | 49 218 | 50 439 | 50 413 |
| Total banknotes | 40 566 | 40 119 | 39 271 | 37 811 | 37 429 | 39 429 | 41 382 | 44 523 | 45 858 | 45 838 |
| 1000-krone | 27 290 | 26 336 | 24 713 | 22 599 | 22 167 | 23 555 | 24 649 | 25 818 | 26 179 | 25 371 |
| 500-krone | 5 588 | 6 107 | 6 921 | 7 626 | 7 732 | 8 278 | 9 060 | 10 374 | 11 213 | 11 882 |
| 200-krone | 3 949 | 4 275 | 4 446 | 4 573 | 4 674 | 4 792 | 4 819 | 5 296 | 5 381 | 5 522 |
| 100-krone | 3 027 | 2 684 | 2 464 | 2 270 | 2 091 | 2 012 | 2 021 | 2 119 | 2 121 | 2 083 |
| 50-krone | 712 | 717 | 727 | 744 | 765 | 793 | 833 | 916 | 964 | 980 |
| Total coins | 3 271 | 3 452 | 3 676 | 3 955 | 4 132 | 4 299 | 4 506 | 4 695 | 4 581 | 4 575 |
| 20-krone | 873 | 966 | 1 124 | 1 387 | 1 561 | 1 667 | 1 778 | 1 849 | 1 665 | 1 541 |
| 10-krone | 1 046 | 1 087 | 1 111 | 1 085 | 1 051 | 1 049 | 1 076 | 1 145 | 1 214 | 1 259 |
| 5-krone | 474 | 487 | 497 | 505 | 515 | 538 | 563 | 598 | 630 | 654 |
| 1-krone | 590 | 617 | 641 | 666 | 686 | 718 | 753 | 799 | 845 | 884 |
| 0.5 krone | 157 | 165 | 174 | 182 | 191 | 199 | 208 | 218 | 228 | 237 |
| 0.10 krone | 130 | 130 | 130 | 130 | 129 | 128 | 128 | 86 | : | : |

Payments infrastructure

Table 6: Institutional infrastructure

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|-------|-------|-------|------------|------------|------------|------------|------------|------------|------------|
| Number of banks | | | | 153 | 152 | 148 | 149 | 147 | 149 | 147 |
| Savings banks | | | | 129 | 129 | 127 | 126 | 124 | 123 | 121 |
| Commercial banks | | | | 16 | 15 | 13 | 14 | 15 | 16 | 16 |
| Number of foreign bank branches in Norway | | | | 8 | 8 | 8 | 9 | 8 | 10 | 10 |
| Number of bank branches | 1 468 | 1 457 | 1 429 | 1 414 | 1 376 | 1 348 | 1 234 | 1 234 | 1 260 | 1 330 |
| Number of Norway Post branches | 1 257 | 1 261 | 1 320 | 1 433 | 1 480 | 1 529 | 1 523 | 1 501 | 1 487 | 1 479 |
| Electronic money institutions | | | | | 4 | 5 | 5 | 4 | 3 | 3 |

Table 7: Number of agreements

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|--|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----------|
| Internet 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 | |
| Internet banking agreements- retail customers | : | : | : | : | : | : | 3 221 839 | 3 683 843 | 4 089 644 | 4 471 351 |
| Internet banking agreements- corporate customers | : | : | : | : | : | : | 60 954 | 325 478 | 348 493 | 369 893 |
| Agreements to offer eFaktura - corporate customers | : | : | : | : | : | : | : | 330 | 460 | 532 |
| Agreements on receipt of eFaktura - retail customers | : | : | : | : | : | : | : | 2 149 356 | 2 914 946 | 4 074 429 |
| Company terminal giro agreements | | | | | | | | 27 904 | 28 707 | 29 127 |
| 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 | |
| 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 | |
| Avtalegiro - payees | 6 041 | 6 473 | 6 883 | 7 194 | 7 905 | 8 761 | 9 554 | 10 373 | 11 135 | |
| Autogiro - payees | 1 174 | 1 200 | 1 265 | 1 232 | 1 187 | 1 243 | 1 441 | 1 350 | 1 170 | |

Table 8: Number of issued cards (thousands), number of functions in issued cards (thousands) and number of terminals

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|
| Number of issued cards | 5 220 | 5 611 | 6 081 | 6 395 | 6 931 | 7 616 | 7 872 | 9 187 | 9 908 | 10 629 |
| Cards with a chip | : | : | : | : | : | : | : | 1 235 | 2 540 | 3 848 |
| Cards with a magnetic strip | : | : | : | : | : | : | : | 7 953 | 7 368 | 6 781 |
| Number of functions in issued cards | 8 406 | 9 056 | 10 075 | 10 575 | 11 322 | 12 298 | 12 449 | 14 169 | 15 335 | 16 772 |
| Debit functions | 6 853 | 7 419 | 7 991 | 8 212 | 8 600 | 9 326 | 9 107 | 10 138 | 10 519 | 11 899 |
| BankAxept | 3 734 | 4 020 | 4 287 | 4 362 | 4 527 | 4 985 | 4 894 | 5 537 | 5 569 | 6 218 |
| Payment cards issued by international card companies | 3 119 | 3 399 | 3 704 | 3 850 | 4 073 | 4 341 | 4 214 | 4 601 | 4 949 | 5 681 |
| Billing functions (payment cards issued by international card companies) | 395 | 416 | 445 | 438 | 451 | 470 | 451 | 478 | 522 | 535 |
| Credit functions | 1 158 | 1 221 | 1 638 | 1 925 | 2 271 | 2 502 | 2 891 | 3 553 | 4 294 | 4 338 |
| National credit cards | 687 | 577 | 630 | 681 | 646 | 535 | 546 | 548 | 647 | 625 |
| Payment cards issued by international card companies | 471 | 644 | 1 008 | 1 244 | 1 624 | 1 967 | 2 345 | 3 005 | 3 647 | 3 713 |
| Number of terminals that accept BankAxept cards | 60 749 | 67 445 | 73 832 | 82 294 | 93 456 | 94 386 | 96 591 | 100 021 | 109 821 | 118 431 |
| ATMs | 2 007 | 2 119 | 2 144 | 2 188 | 2 217 | 2 180 | 2 184 | 2 250 | 2 272 | 2 192 |
| Payment terminals (EFTPOS) | 58 742 | 65 326 | 71 688 | 80 106 | 91 239 | 92 206 | 94 407 | 97 771 | 107 549 | 116 239 |
| Owned by banks | : | 55 208 | 59 184 | 65 374 | 66 207 | 68 197 | 66 786 | 74 303 | 75 460 | 77 804 |
| Owned by others | : | 10 118 | 12 504 | 14 732 | 25 032 | 24 009 | 27 621 | 23 468 | 32 089 | 38 435 |
| Number of locations with payment terminals (EFTPOS) that accept BankAxept cards | 42 164 | 47 434 | 49 328 | 52 705 | 59 100 | 63 976 | 73 242 | 78 656 | 85 490 | 94 496 |

Customer-oriented payment services

Table 9: Use of payment services (in millions of transactions)

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|--|--------------|--------------|--------------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Total | 695,3 | 760,9 | 848,3 | 960,4 | 1 039,3 | 1 144,9 | 1 235,5 | 1 341,0 | 1 476,3 | 1 602,6 |
| Debit and credit transfers (Giro) | 371,3 | 370,4 | 397,5 | 440,5 | 442,8 | 465,6 | 480,4 | 489,3 | 510,7 | 526,6 |
| Electronic ¹ | 202,7 | 221,0 | 268,1 | 331,3 | 348,9 | 384,3 | 411,8 | 437,4 | 462,3 | 483,9 |
| Paper-based | 168,5 | 149,3 | 129,3 | 109,3 | 93,9 | 81,3 | 68,6 | 51,9 | 48,4 | 42,7 |
| Payment cards (goods purchases) | 317,7 | 386,5 | 448,0 | 517,8 | 595,0 | 678,1 | 754,2 | 851,0 | 965,1 | 1 075,6 |
| Electronic | 307,3 | 378,4 | 439,0 | 508,0 | 584,7 | 664,2 | 737,9 | 830,7 | 960,3 | 1 073,2 |
| Manual | 10,4 | 8,2 | 9,0 | 9,8 | 10,3 | 13,9 | 16,3 | 20,4 | 4,8 | 2,4 |
| Cheques | 6,3 | 4,0 | 2,9 | 2,0 | 1,5 | 1,2 | 0,8 | 0,7 | 0,5 | 0,4 |

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

Table 10: Debit and credit transfers (giros) (in millions of transactions)

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Total | 371,3 | 370,4 | 396,7 | 440,3 | 442,8 | 465,6 | 480,4 | 489,3 | 510,7 | 526,6 |
| Credit transfers¹ | 318,3 | 320,9 | 343,5 | 393,9 | 395,5 | 418,2 | 431,6 | 439,6 | 453,5 | 466,3 |
| Electronic | 172,7 | 192,1 | 234,5 | 299,9 | 314,8 | 348,5 | 371,9 | 395,6 | 412,7 | 430,5 |
| Company terminal giro | 129,9 | 128,7 | 143,8 | 153,2 | 164,4 | 160,2 | 95,8 | 51,5 | 46,1 | 43,2 |
| Internet banking | 14,5 | 34,6 | 62,0 | 81,4 | 101,5 | 138,4 | 227,8 | 293,6 | 318,8 | 340,4 |
| Internet banking solutions for retail customers | 14,5 | 34,6 | 62,0 | 81,4 | 91,6 | 112,0 | 131,8 | 144,0 | 154,2 | 171,2 |
| Internet banking solutions for corporate customers | - | - | - | : | 9,9 | 26,4 | 96,0 | 149,6 | 164,6 | 169,2 |
| Telephone giros | 28,3 | 28,8 | 28,7 | 26,8 | 25,5 | 24,8 | 21,8 | 16,9 | 13,9 | 12,2 |
| Miscellaneous other electronic credit transfers | : | : | : | 38,5 | 23,4 | 25,1 | 26,4 | 33,6 | 33,8 | 34,7 |
| Paper-based | 145,6 | 128,9 | 109,1 | 94,0 | 80,6 | 69,7 | 59,8 | 44,0 | 40,8 | 35,8 |
| Company terminal giros and internet banking as money order | 9,4 | 6,3 | 5,6 | 4,9 | 4,2 | 3,0 | 2,6 | 1,0 | 1,7 | 1,3 |
| Mail giros | 107,0 | 90,2 | 74,4 | 61,7 | 52,1 | 44,6 | 38,0 | 32,6 | 29,0 | 26,1 |
| Giros delivered at the counter - account debits | 29,2 | 32,4 | 28,3 | 27,1 | 24,4 | 22,0 | 19,2 | 10,4 | 10,1 | 8,4 |
| Miscellaneous giros registered in banks ² | - | 0,0 | 0,8 | 0,3 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| Direct debits | 30,0 | 29,0 | 33,6 | 31,3 | 34,1 | 35,8 | 39,9 | 41,8 | 49,6 | 53,4 |
| Giros delivered at the counter - cash payments | 22,9 | 20,4 | 19,5 | 15,0 | 13,2 | 11,6 | 8,9 | 7,8 | 7,6 | 6,9 |

¹ Figures for credit transfers do not include miscellaneous credit transfers, including standing orders in the period 1998 - 2001.

² Miscellaneous giros registered in banks includes both cash payments and account debits.

Table 11a: Payment cards: Use of cards (in millions of transactions)¹

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|----------------|
| Total use of Norwegian cards (in Norway and abroad) | 429,1 | 496,8 | 563,6 | 631,1 | 704,7 | 786,6 | 862,2 | 957,6 | 1 070,7 | 1 182,0 |
| Goods purchases | 317,7 | 386,5 | 448,0 | 517,8 | 595,0 | 678,1 | 754,5 | 851,0 | 965,1 | 1 075,6 |
| Goods purchases without cashback | : | 283,8 | 323,8 | 385,2 | 456,8 | 533,6 | 618,5 | 769,1 | 887,4 | 1 002,4 |
| Goods purchases with cashback | : | 102,7 | 124,2 | 132,6 | 138,2 | 144,6 | 135,9 | 81,9 | 77,7 | 73,2 |
| Cash withdrawals without goods purchases | 111,4 | 110,3 | 115,7 | 113,3 | 109,7 | 108,5 | 107,8 | 106,6 | 105,6 | 106,4 |
| Use of Norwegian cards abroad | 19,0 | 22,6 | 26,2 | 31,5 | 36,2 | 38,3 | 38,8 | 50,6 | 70,4 | 74,4 |
| Goods purchases | 13,2 | 16,3 | 19,0 | 23,2 | 27,0 | 29,8 | 30,6 | 42,3 | 58,2 | 60,3 |
| Cash withdrawals | 5,8 | 6,3 | 7,1 | 8,3 | 9,2 | 8,6 | 8,3 | 8,3 | 12,2 | 14,1 |
| Use of Norwegian cards broken down by function | | | | | | | | | | |
| Debit functions | 410,0 | 473,7 | 536,5 | 601,4 | 669,5 | 743,6 | 809,2 | 904,2 | 1 001,3 | 1 102,8 |
| BankAxept | 385,0 | 441,1 | 496,7 | 548,3 | 615,3 | 681,7 | 745,7 | 817,4 | 896,1 | 987,7 |
| Payment cards issued by international card companies | 25,0 | 32,6 | 39,8 | 53,1 | 54,2 | 61,9 | 63,5 | 86,8 | 105,3 | 115,1 |
| Billing functions (Payment cards issued by international card companies) | 12,5 | 13,9 | 14,8 | 13,9 | 14,8 | 16,3 | 19,1 | 17,7 | 20,5 | 22,6 |
| Credit functions | 6,7 | 9,2 | 12,3 | 15,7 | 20,4 | 26,7 | 33,9 | 35,7 | 48,8 | 56,5 |
| National credit cards | 1,9 | 2,9 | 3,6 | 4,5 | 5,3 | 5,7 | 6,1 | 6,5 | 7,8 | 8,8 |
| Payment cards issued by international card companies | 4,8 | 6,3 | 8,8 | 11,2 | 15,1 | 21,0 | 27,8 | 29,2 | 40,9 | 47,8 |
| Use of foreign cards in Norway | 6,7 | 7,1 | 7,8 | 8,6 | 9,5 | 10,8 | 13,6 | 14,3 | 22,4 | 26,9 |
| Goods purchases | 5,1 | 6,0 | 6,5 | 7,3 | 8,1 | 9,3 | 12,4 | 12,6 | 15,5 | 16,8 |
| Cash withdrawals | 1,6 | 1,2 | 1,3 | 1,4 | 1,4 | 1,5 | 1,3 | 1,7 | 6,9 | 10,1 |

¹ Figures for the years 1999 - 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 11b: Payment cards: Use of payment terminals (in millions of transactions)

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|----------------|
| Use of Norwegian terminals | : | 514,8 | 578,3 | 633,3 | 709,6 | 780,9 | 857,3 | 941,1 | 1043,1 | 1157,1 |
| Cash withdrawals from ATMs | | 107,4 | 106,1 | 109,0 | 103,5 | 102,1 | 99,3 | 98,7 | 99,8 | 100,2 |
| Goods purchases in EFTPOS terminals that accept BankAxept | | 338,8 | 391,6 | 446,1 | 500,8 | 575,6 | 638,5 | 718,1 | 797,6 | 868,1 |
| 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 |
| Goods purchases in other Norwegian payment terminals | : | 17,1 | 23,2 | 29,0 | 31,9 | 43,1 | 40,5 | 43,7 | 74,8 | 85,9 |
| 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 |
| Cash withdrawals from ATMs | : | 103,3 | 107,7 | 102,1 | 100,3 | 99,2 | 98,8 | 98,1 | 93,3 | 92,1 |
| BankAxept | | 102,3 | 98,6 | 102,0 | 96,6 | 95,6 | 93,2 | 91,7 | 88,7 | 86,7 |
| National credit cards | | 0,9 | 1,0 | 1,2 | 1,0 | 1,4 | 1,1 | 0,8 | 1,1 | 0,9 |
| Cards issued by international card companies | : | 3,8 | 4,5 | 4,5 | 3,3 | 4,9 | 6,3 | 8,4 | 5,6 | 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 |
| BankAxept - goods purchases (including purchases with cashback) in EFTPOS terminals | | 282,7 | 342,5 | 394,7 | 451,7 | 519,7 | 588,4 | 654,1 | 728,7 | 809,4 |
| National credit cards - goods purchases | : | 1,3 | 2,0 | 3,0 | 3,8 | 4,1 | 4,8 | 5,3 | 6,7 | 7,8 |
| 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 |

Table 12: Cross-border transfers registered in the Register of Crossborder Transactions and Currency Exchange (in thousands of transactions)

| | 2006 | 2007 | 2008 |
|--|----------------|----------------|----------------|
| Transfers from Norway abroad | 5 422,5 | 6 298,6 | 6 521,9 |
| SWIFT | 5 171,1 | 5 861,4 | 5 919,3 |
| Foreign currency cheques | 97,0 | 133,1 | 159,2 |
| Other transfers (MoneyGram, Western Union, etc.) | 154,5 | 304,1 | 443,5 |
| Transfers to Norway from abroad | 2 784,8 | 2 791,7 | 2 872,9 |
| SWIFT | 2 773,7 | 2 743,5 | 2 822,7 |
| Foreign currency cheques | 3,2 | 36,7 | 34,8 |
| Other transfers (MoneyGram, Western Union, etc.) | 7,9 | 11,5 | 15,5 |

Table 13: Use of payment services (in NOK billion)

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|
| Total | 5 875,4 | 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 |
| Debit and credit transfers (giros) | 5 572,4 | 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 |
| Electronic ¹ | 4 444,4 | 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 |
| Paper-based | 1 127,9 | 907,7 | 539,0 | 486,3 | 411,3 | 372,4 | 247,4 | 224,7 | 216,5 | 186,8 |
| Payment cards (goods purchases) | 164,1 | 164,3 | 184,2 | 224,9 | 236,6 | 265,0 | 305,5 | 381,0 | 424,3 | 473,5 |
| Electronic | 151,2 | 156,2 | 175,4 | 215,4 | 227,9 | 254,1 | 289,5 | 365,1 | 418,3 | 470,0 |
| Manual | 12,9 | 8,1 | 8,9 | 9,5 | 8,7 | 10,9 | 16,0 | 15,9 | 6,0 | 3,5 |
| Cheques | 138,9 | 102,4 | 72,5 | 56,6 | 44,9 | 42,5 | 32,9 | 15,8 | 12,9 | 11,3 |

¹ Figures for electronic giros to end-2001 do not include various credit transfers, e.g. standing orders.

Table 14: Debit and credit transfers (giros) (in NOK billion)

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|
| Total | 5 572,4 | 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 |
| Credit transfers¹ | 5 265,1 | 5 314,2 | 5 410,5 | 5 714,4 | 6 431,5 | 8 396,5 | 7 612,6 | 8 624,8 | 10 149,4 | 10 992,5 |
| Electronic | 4 281,0 | 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 |
| Company terminal giros | 4 185,7 | 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 |
| Internet banking | 39,7 | 93,3 | 197,3 | 409,1 | 650,7 | 1 351,8 | 4 272,8 | 5 772,4 | 6 496,3 | 8 239,4 |
| Internet banking solutions for retail customers | 39,7 | 93,3 | 197,3 | : | 332,6 | 436,4 | 517,3 | 585,4 | 650,1 | 775,6 |
| Internet banking solutions for corporate customers | - | - | - | : | 318,1 | 915,4 | 3 755,6 | 5 187,0 | 5 846,2 | 7 463,8 |
| Telephone giros | 55,6 | 52,5 | 57,6 | 54,3 | 51,0 | 48,4 | 43,8 | 37,5 | 31,0 | 29,7 |
| Various other electronic credit transfers | : | : | : | 166,3 | 150,4 | 151,5 | 155,9 | 352,6 | 543,8 | 487,6 |
| Paper-based | 984,1 | 796,2 | 439,3 | 406,4 | 354,1 | 291,4 | 163,5 | 168,2 | 156,9 | 133,0 |
| Company terminal giros and internet banking as money order | 56,5 | 44,0 | 42,0 | 36,8 | 33,4 | 27,2 | 4,5 | 11,7 | 15,7 | 10,5 |
| Mail giros | 597,6 | 527,7 | 195,5 | 175,7 | 184,6 | 161,1 | 103,0 | 81,7 | 72,0 | 62,6 |
| Giros delivered at the counter - account debits | 330,1 | 224,6 | 189,0 | 190,0 | 136,1 | 103,1 | 55,9 | 74,7 | 69,2 | 59,8 |
| Miscellaneous giros registered in banks ² | - | 0,0 | 12,9 | 3,9 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| Direct debits | 163,5 | 202,0 | 184,8 | 149,2 | 164,6 | 178,5 | 212,9 | 223,5 | 219,7 | 183,4 |
| Giros delivered at the counter - cash payments | 143,8 | 111,5 | 99,7 | 79,8 | 57,2 | 81,0 | 83,9 | 56,5 | 59,7 | 53,8 |

¹ Figures for credit transfers do not include various credit transfers, including standing orders in the period 1998 - 2001.

² Miscellaneous giros registered in banks include both cash payments and account debits.

Table 15a: Payment cards: Use of cards (in NOK billion)

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Total use of Norwegian cards (in Norway and abroad)¹ | 277,1 | 315,9 | 355,7 | 382,9 | 411,6 | 440,0 | 480,8 | 510,8 | 556,6 | 609,0 |
| Goods purchases | 164,1 | 164,3 | 184,2 | 224,9 | 236,6 | 265,0 | 305,4 | 352,2 | 396,1 | 445,8 |
| Cashback from EFTPOS terminals | : | 36,9 | 44,7 | 47,5 | 48,3 | 48,3 | 49,4 | 28,8 | 28,1 | 27,8 |
| Cash withdrawals without goods purchases | 113,0 | 114,6 | 126,8 | 110,4 | 126,6 | 126,7 | 126,0 | 129,8 | 132,4 | 135,5 |
| Use of Norwegian cards abroad | 19,5 | 23,3 | 25,6 | 29,3 | 33,6 | 34,4 | 35,5 | 40,5 | 58,5 | 62,2 |
| Goods purchases | 11,1 | 13,8 | 15,0 | 17,4 | 20,4 | 21,8 | 23,5 | 28,5 | 40,7 | 41,9 |
| Cash withdrawals | 8,4 | 9,5 | 10,6 | 11,9 | 13,3 | 12,6 | 12,0 | 12,0 | 17,8 | 20,3 |
| Use of Norwegian cards broken down by function | | | | | | | | | | |
| Debit functions | 251,2 | 283,4 | 320,0 | 344,5 | 371,0 | 393,5 | 429,1 | 447,3 | 483,7 | 525,9 |
| BankAxept | 232,3 | 259,8 | 291,8 | 309,7 | 335,7 | 354,1 | 386,9 | 398,0 | 422,2 | 461,7 |
| Payment cards issued by international card companies | 18,8 | 23,6 | 28,2 | 34,8 | 35,4 | 39,4 | 42,2 | 49,2 | 61,5 | 64,3 |
| Billing functions (payment cards issued by international card companies) | 15,3 | 17,2 | 18,1 | 17,5 | 16,9 | 17,8 | 19,7 | 19,0 | 22,9 | 25,1 |
| Credit functions | 10,8 | 15,4 | 17,6 | 20,8 | 23,8 | 28,8 | 32,0 | 44,5 | 50,0 | 58,0 |
| National credit cards | 5,1 | 6,7 | 7,4 | 8,3 | 7,5 | 7,6 | 5,3 | 8,7 | 9,5 | 10,1 |
| Payment cards issued by international card companies | 5,7 | 8,7 | 10,3 | 12,5 | 16,2 | 21,1 | 26,7 | 35,8 | 40,4 | 47,9 |
| Use of foreign cards i Norway² | 5,5 | 5,4 | 5,8 | 5,9 | 6,9 | 8,5 | 9,6 | 10,2 | 15,2 | 21,0 |
| Goods purchases | 4,0 | 3,9 | 4,1 | 4,2 | 5,0 | 6,3 | 7,7 | 7,9 | 9,5 | 13,6 |
| Cash withdrawals | 1,5 | 1,5 | 1,7 | 1,7 | 1,9 | 2,2 | 1,8 | 2,4 | 5,7 | 7,4 |

¹ Figures for the years 1999 - 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 include the use of cards on the Internet.

² Figures for the use of international payment cards in EFTPOS terminals to end-2005 also include the use of cards on the Internet.

Table 15b: Payment cards: Use of payment terminals (in NOK billion)

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|-------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Use of Norwegian terminals | : | : | : | 367,0 | 395,1 | 419,7 | 454,8 | 483,1 | 520,4 | 579,4 |
| Cash withdrawals from ATMs | 105,6 | 106,3 | 115,8 | 114,0 | 115,0 | 113,1 | 112,0 | 119,2 | 119,8 | 122,1 |
| Goods purchases in EFTPOS terminals that accept BankAxept cards | : | : | : | 183,5 | 211,2 | 231,2 | 272,6 | 305,8 | 319,7 | 365,6 |
| 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 |
| Goods purchases at other Norwegian payment terminals | : | 15,9 | 18,3 | 21,9 | 20,5 | 27,1 | 20,8 | 29,3 | 52,9 | 63,9 |
| 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 |
| Cash withdrawals from ATMs | : | 103,6 | 114,3 | 112,4 | 112,6 | 112,8 | 112,1 | 116,9 | 114,1 | 114,8 |
| BankAxept | 99,2 | 97,9 | 107,0 | 105,0 | 105,7 | 104,2 | 101,9 | 103,1 | 103,2 | 102,8 |
| National credit cards | 1,1 | 1,4 | 1,4 | 1,4 | 2,1 | 1,7 | 1,3 | 1,6 | 1,4 | 1,4 |
| Cards issued by international card companies | : | 4,4 | 5,9 | 6,0 | 4,9 | 7,0 | 8,9 | 12,2 | 9,5 | 10,6 |
| 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 |
| Goods purchases in payment terminals | : | 147,5 | 165,8 | 186,0 | 214,6 | 239,8 | 277,7 | 316,8 | 352,8 | 402,6 |
| BankAxept - goods purchases in EFTPOS terminals | 133,1 | 125,0 | 140,1 | 157,2 | 181,6 | 201,7 | 235,4 | 266,1 | 290,9 | 331,0 |
| National credit cards - goods purchases | : | 2,7 | 3,2 | 4,3 | 5,0 | 5,1 | 5,7 | 5,9 | 6,8 | 7,7 |
| 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 |

Table 16: Cross-border transfers registered in the Register of Crossborder Transactions and Currency Exchange (in NOK million)

| | 2006 | 2007 | 2008 |
|--|---------|------------------|------------------|
| Transfers from Norway abroad | : | 5 791 416 | 6 503 064 |
| SWIFT | : | 5 153 212 | 5 818 297 |
| Foreign currency cheques | 766 232 | 636 924 | 683 043 |
| Other transfers (MoneyGram, Western Union, etc.) | 620 | 1 280 | 1 724 |
| Transfers to Norway from abroad | : | 4 047 008 | 4 578 060 |
| SWIFT | : | 4 039 783 | 4 574 037 |
| Foreign currency cheques | 5 184 | 7 150 | 3 928 |
| Other transfers (MoneyGram, Western Union, etc.) | 43 | 75 | 95 |

Interbank

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

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------------|
| NICS | | | | | | | | | | |
| SWIFT Gross/RTGS | 331 | 282 | 303 | 300 | 596 | 611 | 532 | 547 | 593 | 605 ¹ |
| SWIFT Net | 4 258 | 4 344 | 4 719 | 4 925 | 5 155 | 4 480 | 4 744 | 5 301 | 5 908 | 6 390 |
| NICS Retail (million) | 2-3 | 3,0 | 3,4 | 3,7 | 4,0 | 4,3 | 4,7 | 5,1 | 5,5 | 5,9 |
| NBO | | | | | | | | | | |
| NICS SWIFT RTGS | | | | | | | | | 593 | 539 ¹ |
| RTGS Gross transactions outside of NICS | | | | | | | | | 199 | 272 |
| NICS SWIFT Net | | | | | | | | | 68 | 69 |
| NICS Retail | | | | | | | | | 120 | 124 |
| VPO | | | | | | | | | 71 | 62 |
| VPS Clearing | | | | | | | | | 10 | 16 |

¹ Gross through NICS: Difference is figures for NICS and NBO stem from the use of backup solutions in October 2008.

Table 18: Average daily turnover in clearing and settlement systems (in NOK billion)

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|-----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| NICS | 165-170 | 175,1 | 211,4 | 212,5 | 248,7 | 195,7 | 200,8 | 224,8 | 254,5 | 246,6 |
| SWIFT Gross/RTGS ¹ | 127,0 | 123,0 | 151,2 | 149,5 | 187,8 | 129,4 | 135,5 | 155,3 | 176,8 | 165,9 |
| SWIFT Net | 18,0 | 16,9 | 16,1 | 16,2 | 12,6 | 5,2 | 5,7 | 6,7 | 7,6 | 7,3 |
| NICS Retail | 20-25 | 35,1 | 44,1 | 46,8 | 48,3 | 61,1 | 59,6 | 62,8 | 70,1 | 73,4 |
| NBO | ca 147,2 | 144,0 | 172,1 | 169,2 | 206,8 | 152,3 | 160,8 | 185,2 | 226,1 | 224,9 |
| NICS SWIFT RTGS ¹ | 127,3 | 123,2 | 150,7 | 149,5 | 187,7 | 128,9 | 135,5 | 155,3 | 180,2 | 163,9 |
| RTGS Gross transactions outside of NICS | 8,3 | 9,3 | 6,9 | 4,8 | 7,2 | 11,1 | 12,1 | 16,1 | 31,1 | 45,6 |
| NICS SWIFT Net | 5,2 | 3,8 | 5,3 | 5,5 | 2,1 | 1,0 | 0,9 | 1,0 | 1,2 | 1,1 |
| NICS Retail | ca 4 | 5,5 | 6,8 | 6,9 | 6,7 | 7,6 | 8,5 | 8,1 | 8,1 | 9,2 |
| VPO and VPS Clearing (formerly NOS) | 2,4 | 2,2 | 2,3 | 2,5 | 3,1 | 3,7 | 3,8 | 4,7 | 5,5 | 5,1 |
| VPO | | | | | | | | 4,4 | 5,1 | 4,9 |
| VPS Clearing | | | | | | | | 0,3 | 0,4 | 0,3 |

¹ Gross through NICS: Difference is figures for NICS and NBO stem among other things from the use of backup solutions.

Table 19: Number of participants in clearing and settlement systems (at year-end)

| | 2006 | 2007 | 2008 |
|--|------|------|------|
| Norges Bank's settlement system (NBO): Banks with account in Norges Bank | 145 | 142 | 143 |
| Norges Bank's settlement system (NBO): Banks with retail net settlement in Norges Bank | 23 | 23 | 22 |
| DnB NOR | 104 | 103 | 103 |
| Sparebank 1 Midt-Norge | 17 | 18 | 16 |
| Norwegian Interbank Clearing System (NICS) | 146 | 146 | 143 |
| The Securities Settlement System (VPO) | | | 76 |

Table 20: Participation in SWIFT

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

Table 21: SWIFT message traffic to/from Norway (in thousands of transactions)

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|-----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Number of messages sent | 8 124 | 9 238 | 10 521 | 11 239 | 12 931 | 18 590 | 22 060 | 30 090 | 42 300 | 57 640 |
| Number of messages received | 6 051 | 6 920 | 8 163 | 8 747 | 10 391 | 13 650 | 13 500 | 15 250 | 17 300 | 20 200 |
| Global SWIFT traffic | 1 058 836 | 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 |

Prices

Table 22: Price list for participation in Norges Bank's settlement system (NBO), valid from 1 January 2007 (in NOK)

| Annual fees | Basic price for participation | Retail settlement | SWIFT settlement | Securities settlement | Derivative settlement | Basic fee for collateral for loans | Supplementary fee for collateral deposited abroad | Scandinavian Cash Pool |
|--|--------------------------------------|--------------------------|-------------------------|------------------------------|------------------------------|---|--|-------------------------------|
| Participant category | | | | | | | | |
| Banks with total assets over NOK 100 billion | 550 000 | 100 000 | 90 000 | 120 000 | 80 000 | 210 000 | 200 000 | 15 000 |
| Banks with total assets between NOK 40 and 100 billion | 450 000 | 80 000 | 70 000 | 100 000 | 60 000 | 160 000 | 175 000 | 15 000 |
| Banks with total assets between NOK 10 and 40 billion | 350 000 | 60 000 | 50 000 | 80 000 | 40 000 | 110 000 | 150 000 | 15 000 |
| Banks with total assets under NOK 10 billion | 150 000 | 50 000 | 40 000 | 70 000 | 30 000 | 60 000 | 125 000 | 15 000 |
| Investment firms | 20 000 | 40 000 | 30 000 | 60 000 | 20 000 | 25 000 | 125 000 | 15 000 |
| Money brokers | | | | 120 000 | | | | |

| Participant category | Transaction prices | | Prices for pledging collateral | | | |
|-----------------------------|---------------------------|----------------------------------|--|--|---|---|
| | STP transactions | Manual gross transactions | Changes in collateral registered in VPS | Changes in collateral registered abroad | Application for approval of new securities (ISIN) in VPS | Application for approval of new securities (ISIN) abroad |
| Banks | 1 | 60 | 200 | 400 | 1 500 | 3 000 |

| Deltakategori | Tilknytningspris |
|----------------------------|-------------------------|
| Banker / verdipapirforetak | 50 000 |

Table 23: Price list for banks' delivery and withdrawal of cash to and from Norges Bank's depot

| Type of fee/charge¹ | Innlevering | Utlevering |
|---------------------------------------|--------------------|-------------------|
| Handling fee, fixed share | | |
| Banknotes, per transaction | 150 | 150 |
| Coins, per transaction | 150 | 150 |
| Handling fee, variable share | | |
| Banknotes, per packet of 500 notes | 25 | 25 |
| Coins, per standard unit (150 rolls) | 50 | 50 |

¹ Prices do not apply to exempt exchange transactions or delivery of banknotes and coins not fit for circulation.

Table 24: Prices for domestic payment transactions, receipt of payments and cash withdrawals. Weighted average (in NOK) in selected banks on 1 January each year for customers other than programme customers

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Payment transactions | | | | | | | | | | |
| Electronic giro services | | | | | | | | | | |
| Telephone giros | 2,38 | 2,45 | 2,44 | 2,38 | 2,14 | 2,15 | 2,21 | 2,22 | 2,21 | 2,17 |
| Internet banking - solutions for retail customers | | | | | | | | | | |
| Payment with CID | 1,94 | 1,91 | 1,88 | 1,95 | 1,95 | 2,03 | 2,08 | 2,04 | 2,01 | 2,01 |
| Payment with notification | | | | | | | | 2,37 | 2,87 | 2,91 |
| Direct debits (Avtalegiro) | | | | | | | | 2,07 | 2,08 | 2,12 |
| Direct Remittance without notification | 2,07 | 2,73 | 2,82 | 2,85 | 2,99 | 3,28 | 3,35 | 3,49 | | |
| Direct Remittance with notification | 4,02 | 4,25 | 4,78 | 4,88 | 5,19 | 5,46 | 5,53 | 5,48 | | |
| Direct Remittance with CID | 1,03 | 1,31 | 1,38 | 1,38 | 1,47 | 1,52 | 1,58 | 1,59 | | |
| Other company terminal giro without notification | 1,91 | 1,96 | 2,07 | 2,03 | 1,62 | 2,78 | 1,72 | 2,66 | | |
| Other company terminal giro with notification | 3,14 | 3,58 | 3,61 | 3,68 | 3,80 | 3,62 | 3,72 | 3,83 | | |
| Other company terminal giro with CID | 0,88 | 0,98 | 0,99 | 1,01 | 1,03 | 1,55 | 1,95 | 1,24 | | |
| Internet banking - solutions for corporate customers | | | | | | | | | | |
| Payment of wages | | | | | | | | 1,49 | 1,49 | 1,47 |
| Payment without notification | | | | | | | | 1,61 | 1,47 | 1,51 |
| Payment with CID | | | | | | | | 1,08 | 1,11 | 1,12 |
| Payment with notification | | | | | | | | 3,61 | 4,18 | 4,16 |
| Paper-based giro services | | | | | | | | | | |
| Mail giros | 4,84 | 5,14 | 5,67 | 6,36 | 6,52 | 6,85 | 6,87 | 6,87 | 7,03 | 7,52 |
| Giro, account debits | 16,92 | 18,59 | 25,10 | 26,01 | 29,99 | 33,17 | 33,37 | 33,62 | 33,58 | 41,91 |
| Giro, cash payment | 26,11 | 27,18 | 31,69 | 32,50 | 41,93 | 40,89 | 42,00 | 42,49 | 43,74 | 63,28 |
| Direct Remittance sent as money order | 27,78 | 30,01 | 32,64 | 33,70 | 35,69 | 46,65 | 47,86 | 51,55 | | |
| Other company terminal giro sent as money order | 26,06 | 30,11 | 32,61 | 33,58 | 35,27 | 46,06 | 37,21 | 43,28 | | |
| Corporate Netbank sent as money order | | | | | | | | 50,35 | 50,21 | 75,68 |
| Payment cards | | | | | | | | | | |
| BankAxept cards in payment terminals (EFTPOS) | 2,19 | 2,24 | 2,07 | 2,07 | 2,11 | 2,44 | 2,32 | 2,35 | 2,31 | 2,27 |
| Cheques | | | | | | | | | | |
| Personal cheques | 15,00 | 20,07 | 20,70 | 21,13 | 20,64 | 27,58 | 27,32 | 28,54 | | |
| Business cheques | 15,13 | 22,05 | 22,79 | 23,94 | 24,01 | 27,58 | 27,24 | 28,46 | | |
| Receipt of payments | | | | | | | | | | |
| Electronic giro services | | | | | | | | | | |
| Direct debits (Avtalegiro) (without notification from the bank) | 1,38 | 1,42 | 1,42 | 1,42 | 1,52 | 1,38 | 1,37 | 1,37 | 1,34 | 1,39 |
| Optical Character Recognition (OCR) - File | 0,89 | 1,13 | 1,15 | 1,17 | 1,16 | 1,24 | 1,30 | 1,29 | 1,31 | 1,33 |
| GiroFax | | | | 0,02 | | | | 0,02 | 0,21 | 0,21 |
| GiroMail | | | | 0,00 | | | | 0,02 | 0,03 | 0,02 |

Paper-based giro services

| | | | | | | | | |
|--|------|------|------|------|------|------|------|------|
| Optical Character Recognition (OCR) - Return | 3,72 | 3,63 | 3,70 | 3,85 | 3,93 | 4,05 | 4,39 | 4,50 |
|--|------|------|------|------|------|------|------|------|

Cash withdrawals**ATMs**

| | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|
| Own bank's ATMs outside opening hours | 3,78 | 4,28 | 3,76 | 3,69 | 3,89 | 4,07 | 3,86 | 3,87 | 3,76 | 3,53 |
| Other banks' ATMs in opening hours | 2,64 | 4,00 | 3,89 | 4,09 | 4,72 | 5,14 | 6,38 | 6,45 | 6,58 | 6,61 |
| Other banks' ATMs outside opening hours | 4,32 | 4,81 | 4,79 | 4,91 | 5,49 | 5,53 | 6,78 | 6,84 | 6,81 | 6,61 |

Table 25: Prices in NOK for transfers from Norway to countries in the EU/EEA. Weighted average in selected banks

| | Electronic payment order/ wholly automated processing | | | | Electronic payment order/ Bank performs some operations manually | | | | Manual payment orders | | | |
|--|--|----------|----------|----------|--|----------|----------|----------|-----------------------|----------|----------|----------|
| | 01-01-06 | 01-01-07 | 02-01-08 | 01-01-09 | 01-01-06 | 01-01-07 | 02-01-08 | 01-01-09 | 01-01-06 | 01-01-07 | 02-01-08 | 01-01-09 |
| Ordinary SWIFT transfer in NOK | | | | | | | | | | | | |
| Without BIC and IBAN, NOK 2 500 | 59,9 | 64,7 | 64,7 | 65,8 | 81,4 | 84,5 | 96,7 | 91,8 | 136,4 | 136,4 | 145,8 | 157,8 |
| With BIC and IBAN, NOK 2 500 | 40,6 | 45,6 | 45,4 | 58,3 | 73,3 | 86,6 | 90,5 | 92,0 | 125,0 | 128,6 | 131,0 | 143,0 |
| Ordinary SWIFT transfer in euro | | | | | | | | | | | | |
| Without BIC and IBAN, equivalent to NOK 2 500 | 59,9 | 63,4 | 63,6 | 64,6 | 81,4 | 84,1 | 91,3 | 87,0 | 136,4 | 136,4 | 145,8 | 157,8 |
| With BIC and IBAN, equivalent to NOK 2 500 | 32,5 | 33,9 | 29,9 | 29,7 | 66,4 | 76,6 | 80,4 | 79,9 | 110,1 | 122,6 | 126,5 | 139,9 |
| SWIFT express transfer in NOK | | | | | | | | | | | | |
| Without BIC and IBAN, NOK 150 000 | 299,2 | 348,0 | 332,7 | 347,9 | 328,4 | 331,5 | 339,3 | 341,7 | 381,1 | 381,6 | 387,7 | 405,0 |
| With BIC and IBAN, NOK 150 000 | 289,9 | 305,7 | 300,3 | 308,1 | 353,5 | 368,3 | 364,3 | 377,8 | 371,5 | 373,9 | 373,0 | 390,3 |
| SWIFT express transfer in euro | | | | | | | | | | | | |
| Without BIC and IBAN, equivalent to NOK 150 000 | 299,2 | 348,0 | 333,2 | 348,4 | 328,4 | 331,5 | 330,5 | 334,4 | 381,1 | 381,6 | 387,8 | 404,6 |
| With BIC and IBAN, equivalent to NOK 150 000 | 282,4 | 303,4 | 298,0 | 304,8 | 346,0 | 360,6 | 356,7 | 368,0 | 362,3 | 373,9 | 372,4 | 389,6 |
| Cheques to other countries | | | | | | | | | | | | |
| Equivalent to NOK 2 500 | - | - | - | - | 162,0 | 164,7 | 165,9 | 167,8 | 202,5 | 204,6 | 207,1 | 221,5 |

**Table 26: Prices in NOK for receipt of payments from abroad.
Weighted average in selected banks**

| | Receipt of payments from countries in the EEA | | | | |
|---|---|----------|----------|----------|----------|
| | 01-01-05 | 01-01-06 | 01-01-07 | 02-01-08 | 01-01-09 |
| Receipt of payments in euro | | | | | |
| Without BIC and IBAN, equivalent to NOK 2500 ¹ | 96,4 | 86,4 | 80,8 | 80,8 | 59,9 |
| Without BIC and IBAN, equivalent to NOK 150 000 | 97,9 | 93,0 | 85,1 | 84,6 | 62,8 |
| With BIC and IBAN, equivalent to NOK 2500 ¹ | 21,6 | 13,2 | 12,6 | 10,4 | 16,0 |
| With BIC and IBAN, equivalent to NOK 150 000 | 95,8 | 29,6 | 12,6 | 10,4 | 16,0 |
| Receipt of payments in other currencies | | | | | |
| Without BIC and IBAN, equivalent to NOK 2500 ¹ | 97,9 | 96,5 | 92,9 | 90,6 | 70,0 |
| Without BIC and IBAN, equivalent to NOK 150 000 | 97,9 | 96,5 | 98,0 | 96,4 | 96,7 |
| With BIC and IBAN, equivalent to NOK 2500 ¹ | 95,8 | 96,5 | 92,3 | 90,2 | 69,5 |
| With BIC and IBAN, equivalent to NOK 150 000 | 95,8 | 96,5 | 95,2 | 94,5 | 74,2 |

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

Definitions and abbreviations

Autogiro: An electronic collection procedure whereby companies can debit outstanding claims directly from customers' accounts when they fall due (see also direct debit).

Avtalegiro (Agreement-based giro): The bank automatically debits payment of regular bills from customers' accounts on the due date (see also direct debit).

BankAxept card: A debit card that is issued by Norwegian banks and linked to a bank account for use in Norway.

BBS: Bankenes Betalingssentral (Banking and Business Solutions)

BIC (Bank Identifier Code): Code that is used to identify a bank by means of the bank's SWIFT address.

BIS (Bank for International Settlements): International organisation that has the purpose of promoting cooperation among the central banks.

Charge card: Payment card that is not linked to a bank account. The user receives an invoice for all use in a given period at regular intervals and pays using another payment instrument. The user has a certain amount of credit in the form of delayed payment, whereas the payee receives settlement from the card company.

CID (Customer Identification Number): A series of digits that uniquely identifies the payer. Several pieces of information about the payer can be contained in the CID.

Clearing: Several transactions are offset against each other, and for each bank a net position is calculated.

CLS (Continuous Linked Settlement): System for the settlement of trading in foreign currency. CLS ensures payment versus payment and thereby removes the credit risk associated with the settlement.

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.

Company terminal giro: Payment solutions for businesses. The solutions require installation of software in the user's/business' computer system. Used for individual payments, retail payments to payees with and without accounts, etc.

CPSS (Committee on Payment and Settlement Systems): CPSS is a forum for the central banks in the G10 countries. The purpose of CPSS is to promote robust, efficient payment systems.

Credit card: Payment card with a credit limit that is repaid according to an agreed repayment plan, regardless of use.

Credit transfer: Money transfer that is initiated by the payer.

Debit card: Payment card that makes it possible for the owner of the card to access deposits and credit in the bank account to which the card is linked. The user's account is debited each time the card is used.

Debit transfer: Money transfer initiated by the payee.

Direct debits: Autogiro and Avtalegiro. Up to and including 2001, the term also included DataGiro Direkte Trekk, DataGiro Terminbetaling and DataGiro Medlemsbetaling.

Direct remittance: Service that is equivalent to the company terminal giro established by BBS.

ECB: European Central Bank

eFaktura: Electronic billing (e-invoice) that is completed with a CID, account number, etc. and sent to the customer's internet bank.

EFTPOS (Electronic Funds Transfer at Point Of Sale): Payments and withdrawals of cash by means of payment cards at electronic payment terminals in shops, etc.

e-money: A monetary value in the form of a claim on the issuer that is stored on an electronic medium, issued on receipt of funds and a recognised means of payments by enterprises other than the issuer.

FNH: Norwegian Financial Services Association

Functions for cards: Payment cards are classified both according to whether they function as BankAxept cards, national credit cards or international payment cards and according to whether they function as debit cards, charge cards or credit cards.

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.

Giro: Credit and debit transfers from one bank account to another.

Gross settlement: Transactions are settled individually, without prior clearing. When this is done in real time, the system is called an RTGS system (Real Time Gross Settlement System).

IBAN (International Bank Account Number): Identifies the payee bank and account number. This kind of number contains three elements: the bank account number, the country code and the bank code.

Internet banking: Payment solutions for persons (Nettbank Person) and enterprises (Nettbank Bedrift) over Internet. Payments can be registered using a PC or company terminal or a mobile telephone

M1: The money-holding sector's holding of Norwegian banknotes and coins, as well as the sector's deposits in current accounts in Norges Bank and commercial and savings banks (in NOK and foreign currencies).

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

Means of payment: Money in the form of cash or deposit money.

NBO: Norges Bank's Settlement System

NICS Operations Office: The NICS Operations Office is the operator of NICS; cf. Chapter 2 of the Act relating to payment systems, etc. The NICS Operations Office is responsible for the organisation and operation of NICS and is the addressee for any instructions from Norges Bank.

NICS: Norwegian Interbank Clearing System

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

Payment cards established by international card companies: Payment cards that are issued on the basis of a direct licence from an international card company (Visa/MasterCard/American Express/Diners Club).

Payment cards: Debit cards, charge cards and credit cards.

Payment instrument: A payment instrument is used to gain access to means of payment. Cash is a payment instrument and a means of payment.

RTGS: Real Time Gross Settlement

SWIFT (Society for Worldwide Interbank Financial Telecommunication): A company that operates a global communications network for payment transactions.

SWIFT offers both a message format and a transaction route.

Telephone giros: Transfers from one account to another, initiated by telephone.

Various other electronic credit transfers: Local payment solutions used for standing orders, downpayment of loans, etc.

VPO: Securities settlement system

VPS: Verdipapirsentralen ASA (The Norwegian Central Securities Depository)

Guide to the tables

The following section provides an explanation of sources for figures, data quality, calculation methods for averages and further details concerning the contents of the tables. Statistics 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).

In 2006, the procedures for data collection were revised, and new tables with new contents were established. This has resulted in revision of some of the data in relation to the data presented in the Annual Report on Payment systems in previous years. There are also breaks in some time series. Norges Bank asks to be stated as the source when data from this report is used for other purposes.

Sources

- Information about cash in Norway: Norges Bank.
- Information about clearing and settlement: Norges Bank, NICS Operations Office, SWIFT and DnB NOR.
- General data: Statistics Norway, Norwegian Post and Telecommunications Authority and Kredittilsynet, the Financial Supervisory Authority of Norway.
- Information about giros, cheques, BankAxept cards, ATMs and payment terminals: the Norwegian Financial Services' Association (FNH), the Norwegian Savings Banks' Association, the Norwegian Banks' Payment and Central Clearing House (BBS), EDB Business Partner ASA, SDC Udvikling NUF, 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 AS, Statoil Automat Norge AS, YX Energi Norge AS and A/S Norske Shell. Information about withdrawals from ATMs using domestic credit cards and payment cards established by international card

companies to end-2005 was provided by the owners of the ATMs, while information about withdrawals in 2006 – 2008 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).
- Information about banks' income from the payment system: Database for public financial reports from banks and finance companies (ORBOF database at Statistics Norway).
- Information about prices in the payment system for customers that are not in bank loyalty programmes is based on a survey comprising 24 commercial and savings banks. The banks in the survey accounted for 86% of the market measured in deposits in current accounts by end-November 2008. Prices for consumer-orientated services for 2009 were taken from Finansportalen. Other prices were taken from the banks' price list on 1 January.

Comments on individual tables

Table 7 – Number of agreements

- The number of agreements to offer and receive electronic invoices concerns agreements linked to the use of the BBS service eFaktura.

Table 8 – Number of issued cards, number of functions in issued cards and number of terminals.

- The number of physical cards is lower than the number of functions in the cards. This is due to the high number of combined cards (i.e. cards with several functions, see Definitions).
- 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 10 and 14 – Debit and credit transfers (giro)

- Various other electronic credit transfers are not included in the statistics prior to 2002.
- 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 giro to end-2002 and money orders to end-2005 are in some cases based on estimates from Norges Bank.

Tables 11a and 15a – 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 turnover (Table 15a) for the use of Norwegian cards in 1999 includes cashback from payment terminals, whereas the turnover from 2000 onwards only includes goods purchases.
- 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 has been included in figures for the use of Norwegian cards abroad. In 2008 5.1% of transactions and 3.2% of the turnover constituted such use of cards abroad. To end-2006 cross-border payments were made with bank cards in the Eufiserv network, but these transactions amounted to less than one per cent of the total number of transactions.
- The distribution of the use of Norwegian cards in Norway and abroad from 2004 onwards and the distribution of cash withdrawals and goods purchases for American Express to end-2004 have been based on estimates prepared by Norges Bank.

Tables 11b and 15b – 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

- There is some uncertainty attached to the figures for use of foreign cards in 2006 – 2008.
- 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 1999 – 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 low numbers for 2006 – 2008 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 12 and 16 - Cross-border transfers using SWIFT, foreign currency cheques, foreign currency giro, MoneyGram and Western Union.

- The statistics include payments registered in the Register of Crossborder Transactions and Currency Exchange in 2006 – 2008. New routines for reporting these payments resulted in insufficient information for some banks for 2006 that was subsequently reported to the Register of Crossborder Transactions and Currency Exchange, and there is some uncertainty attached to the figures for both 2006 and 2007.

Table 17-18 – Average daily turnover in NBO and NICS.

- The figures for 1999 only cover the period May–December 1999. The figures for 2000 and later cover the whole year.

Table 24-26 – Prices for domestic payment transactions, receipt of payments and cash withdrawals and prices of cross-border transactions.

- The statistics show average prices in banks for payment transactions and receipt of payments. The figures have been calculated from prices that apply to customers not participating in customer programmes or receiving other types of discount. The average prices have been calculated by weighting the price per payment and/or receipt in each bank with the bank's share of deposits in current accounts.
- For domestic payments, the prices that are paid by the payees are added to the prices that are debited the payers.
- The price of a mail giro refers to each form sent in. Postage for each sending 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 both with and without BIC and IBAN. Prices do not include additional costs for cash payments, third country currency, confirmations or costs that the payer must cover for the payee.

Standard symbols in the tables

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



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