

# The development of the Norwegian payment system in the period 1945–2010, with particular focus on the role of Norges Bank

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This article is a slightly revised version of Chapter II (the summary) in Norges Bank's Occasional Paper No. 44. The Occasional Paper surveys the development of the Norwegian payment system in the period 1945-2010. It documents the main developments in the payment systems area during this period, and is also intended to serve as an input to Norges Bank's Bicentenary Project in connection with Norges Bank's bicentenary in 2016. Thus, in the Occasional Paper particular emphasis is placed on the role of Norges Bank, while less attention is given to some payment system developments and events within the financial sector and internationally.

## 1. General trends

Developments in the payment systems field from World War II until 2010 were influenced not only by the technological developments and the strategies and relationships of the main agents, but also by macroeconomic developments and, not least, the financial sector policies of the authorities. Until around 1960, the Norwegian payment system underwent relatively minor changes. For consumers, cash was the predominant means of payment, while postal giros<sup>3</sup> were used to pay bills. In the business sector, cash was also used, but the use of bills of exchange and cheques was more common. Firms which had a bank account had the option of using bank giros.

The introduction of personal cheque accounts in the 1960s led to increased use of cheques as an instrument of payment by private persons. The use of payment cards remained limited to the Bokreditt retailer's card and international credit cards until the end of the 1970s. From 1960 onwards, the use of electronic data processing (EDP) technology increased, which helped, not least, to make clearing and settlement systems more efficient. The new technology laid the foundation for the technical solutions introduced during the 1970s, which were needed in order to handle the increasing transaction volume and to cut costs. Both the financial industry and the authorities made some attempts to introduce a joint giro system for banks

and Postgiro (Postal Giro), and later a joint card system and a common fee policy. However, the commercial banks and savings banks often disagreed about the choice of solutions, as did the banks and Postal Giro/Postal Savings Bank of Norway. The authorities therefore saw a need for some direction and coordination of the process over and above industry self-regulation. In May 1979, the broad-based Payment Systems Committee presented a comprehensive report which discussed, among other things, principles for the pricing of payment services and closer coordination of the different payment systems.

Partly due to the introduction of fees the use of cheques passed its peak in 1984, while the use of cards increased. The new Norges Bank Act of 1985 gave Norges Bank clear statutory authority to promote an efficient payment system in Norway and from Norway to other countries. Norges Bank subsequently gave priority to exercising this authority in accordance with the intentions of the Act. However, until the end of the 1980s, cards issued by savings banks were equipped with a magnetic strip which could be read by point-of-sale terminals and cash points, while cards issued by commercial banks were fitted with a microprocessor, or chip technology. The card technology of commercial banks was more expensive than that of savings banks, and this cost was only partly compensated for by simpler and cheaper security and control systems. Throughout the 1980s, efforts to establish co-operation between the banks and the Postal giro/Post Savings Bank of Norway and to merge the bank giro and postal giro systems were unsuccessful.

The 1990s were the decade in which the Norwegian payment system made its greatest leap forward in terms

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<sup>3</sup> A giro system offered by the postal services of Norway.

of cooperation between participants, technological solutions and services for the public. In 1991 the banks introduced the BankAxept card solution, and in the mid-1990s, the banks and the Postal Giro agreed on a system that coordinated the parties' giro and account-card systems. The use of cheques had dropped significantly, and in the second half of the 1990s, cheaper electronic payment services like payment cards and online banking accounted for an increasing share of the payments market.

The Norwegian bank problems in the period 1988-93 prompted greater focus on risks in the payment system. In cooperation with the banks, Norges Bank launched a project to develop a more robust and efficient clearing and settlement system. Since November 1999, Norges Bank has had a fully-functional real-time settlement system in place. The Payment Systems Act, which entered into force in 2000, gave Norges Bank overall responsibility for the oversight of the interbank systems, while the Financial Supervisory Authority of Norway (FSA)<sup>4</sup> was given overall responsibility for payment service systems.

The period 2000–2010 was characterised by less changes, although substantial technological improvements were made to systems during this period. One of Norges Bank's main tasks was to fulfil its statutory role by making the central bank's settlement function more efficient. Many of the developments which occurred in the area of payment systems involved using and further developing/formalising the changes made during the 1990s. Internet banking was launched in 1996, but it was only after 2000 that people really began to use the solution. Card payments replaced a large proportion of cheque and cash transactions, and the transition to chip cards towards the end of the decade helped to improve efficiency and security. In addition, the international focus on the importance of robust and efficient infrastructure for payment transfers to other countries and on the incorporation of international recommendations into the Norwegian regulatory framework intensified.

For the period 1945–2010 as a whole, the banks (and, until around 1995, the Postal Giro/The Postal Bank of Norway), played a key role in the development of the payment systems and in putting in place the framework of agreements that ties the systems together. At the same time, Norges Bank has played an important part, particularly in the past 25 years, in the monitoring, supervision and development of the Norwegian payment system, and has used its supervisory authority to supplement the

industry's own regulation of the systems. The Norwegian payment system proved to be robust and efficient during both the Norwegian banking crisis of 1990–1992 and the international financial crisis of 2007–2009. In many ways the Norwegian payment services system has become more coordinated and efficient than the systems of most comparable countries. The close cooperation between the banking industry, the FSA and Norges Bank has been important in this regard. Through its annual reports on the payment system, Norges Bank has since the mid-eighties built up an extensive database of payment statistics that provides a solid basis for documenting and advising on key issues and developments in the payment systems area.

## 2. Norges Bank's position and role in the payment systems area

### *Legislation and framework conditions*

In the period 1945–1985, Norges Bank's role and functions were set out in the Act of 23 April 1892. In the payment systems field, Norges Bank's tasks were limited to administering the central bank's statutory monopoly on issuing bank notes and undertaking operational tasks such as clearing and settlement for the banks and Postal Giro, and performing operational tasks in its capacity as the state's bank. As the Act gradually became inconsistent with modern central bank legislation, a monetary and banking committee was appointed in 1950, which presented a report proposing an act relating to the monetary system and Norges Bank in 1953. The proposal was not implemented due to disagreement about its contents.

Samarbeidsnemnda (the Cooperation Board), which was a forum for public authorities and the financial industry to discuss strategic credit policy and financial issues, was established in 1951 and discontinued in 1965. Payment system questions were also a topic at some of the meetings. The Governor of Norges Bank chaired the Cooperation Board. In 1970, Kredittpolitisk Råd (The Credit Policy Council) was founded, with the Minister of Finance as its chair. Norges Bank was a member of the Council, but the discontinuation of the Cooperation Board reduced Norges Bank's role in this work.

In 1973, a broad-based committee was appointed to evaluate the Norwegian payment system. The committee's main task was to draw up principles for the development of the payment system, not least in view of the payment technology perspectives which arose in connection with the introduction of EDP. The committee was the first body to discuss the question of separate Norwegian statutory regulation of payment systems. The committee presented its main report, Official Norwegian

<sup>4</sup> The Financial Supervisory Authority of Norway was established in 1986 (Kredittilsynet), through the merger of Bankinspeksjonen and Forsikringsrådet. Its name was changed to Finanstilsynet on 21 December 2009.

Report 1979:16 – “Payment transfer systems”, in May 1979<sup>5</sup>.

Many of the proposals were the subject of disagreement. The committee chair and Norges Bank’s representative supported most of the majority proposals, while particularly the representatives of the Postal Services Norway/Postal Giro along with the committee member from the LO (Norwegian Confederation of Trade Unions), dissented regarding a number of points. The representatives from the financial industry, the Ministry of Consumer Affairs and Government Administration and Norges Handelsstands Forbund (a Norwegian business association), also made various diverging proposals. The committee agreed that there was no need for a separate act dealing with payment systems. Nevertheless, the majority proposed the establishment of a payment system council, chaired by Norges Bank. The minority, consisting of Postal Giro/the postal service and LO’s representatives, was of the opinion that such a council might limit competition in the payment systems area, and complicate the decision-making processes of the banks and the postal service. If a broad-based council were established, its leadership and secretariat should be assigned to the Ministry of Finance. The Payment Systems Committee’s thorough reviews of and advice concerning consumer-related payment system issues such as the cheque system, the wage account scheme<sup>6</sup>, debit and credit cards, postal giros and bank giros, cost and revenue conditions and the pricing of payment services played an important role in the further development of the Norwegian payment system throughout the 1980s.

In 1968, the Ministry of Finance appointed a committee with a mandate to consider a new Norges Bank act. It was not until 1983 that a draft of a new Norges Bank act<sup>7</sup> was put forward. In the draft, the committee stated that Norges Bank should play a key role in monitoring the development of the payment system. This proposal was implemented in the Ministry of Finance’s draft act. However, matters of special importance were to be submitted to the Ministry of Finance before a decision was made. The Ministry of Finance did not implement Norges Bank’s hearing proposal regarding a separate statutory provision giving the government power to delegate to Norges Bank the authority to issue regulations and process licensing applications regarding payment systems.

The new Norges Bank Act entered into force on 9 September 1985. Section 1 stated that the Norges Bank was

to “promote an efficient system for making payments in Norway and from Norway to other countries”. Norges Bank’s statutory tasks in the area of payment transfers were thus expanded beyond its monopoly on issuing bank notes to include responsibility for promoting an efficient payment system. According to the preparatory works to the Act, this responsibility was intended to include work on improving existing payment systems and developing new ones. It was assumed that the term “efficient” encompassed security, cost efficiency and speed. The Norwegian Bankers’ Association (association for the commercial banks) opposed that the preamble should task Norges Bank with promoting an efficient system and took the view that the development of the payment system was a task for which the banks should bear primary responsibility.

The statutory provision came at an opportune point in time. The 1970s and 1980s saw the introduction of many technical and cost-saving measures in the payment systems field. There was therefore a need for a public body with overall responsibility for the area. The banking tasks and expertise of Norges Bank, its issuing of bank notes and coins, its close contact with the banking system, and its conduct of settlements for the banks, the postal service and the state gave Norges Bank a good basis for engaging in this work.

### *Implementation of Norges Bank’s new role in the payment systems field*

Enshrining Norges Bank’s responsibility for an efficient payment system in law provided an important clarification, which led Norges Bank to engage much more in payment system issues after 1985. Little progress on issues such as giro coordination, charge cards and pricing had been made in the period between the presentation of the Payment System Committee’s report in 1979 and the enactment of the new central bank act in the autumn of 1985. This was partly due to political reasons, but also to Norges Bank’s previous lack of formal authority in the payment systems area. However, the provision in the preamble was not followed up with authority to issue regulations or instructions, and Norges Bank continued to have only an advisory and facilitating role in the payment systems field. The implementation of measures on which the parties could not agree required decisions by the political authorities. The new Norges Bank Act therefore primarily implemented the model of cooperation and self-regulation suggested by the Payment Systems Committee in 1979.

At the end of 1985, Norges Bank established a payment system council to discuss important matters in the payment systems area and to ensure the necessary coor-

<sup>5</sup> The committee also published reports on IT in payment systems and on a Norwegian card system.

<sup>6</sup> A bank account to which wages are transferred and which may be used for payment transactions.

<sup>7</sup> Official Norwegian Report 1983:39, “Act relating to Norges Bank and the monetary system”.

dination. The management and secretariat of the payment system council was provided by Norges Bank. The committee's members included representatives from the bankers associations, Postdirektoratet (The Postal Directorate), Teledirektoratet (The Telecommunications Directorate), the Datatilsynet (Norwegian Data Inspectorate) the Forbrukerrådet (The Norwegian Consumer Council) and the FSA. The council was an important coordinating body in the period 1986–1995. In accordance with guidelines issued by the political authorities and by various committee recommendations, until around 1990 Norges Bank's work in the payment systems area focused primarily on retail payment systems.

In the period 1986–1995, Norges Bank launched a number of initiatives to develop a coordinated card solution and a coordinated giro system. Norges Bank pointed out that electronic payment transfers were characterised by economies of scale, and that it was desirable from an economic perspective to exploit these. Coordination of the card systems, so that all types of cards could be used in all types of terminals, was therefore required. As regards a coordinated giro system, Norges Bank provided the management and secretariat for the working group which in the autumn of 1988 considered various alternatives for a standard form for bank and postal giros. The working group recommended just a single credit account number, and evaluated both the need for improved coordination of automatic giro services and matters linked to the postal service's framework conditions.

Whereas the commercial banks and savings banks gradually found uniform solutions in the giro and card areas, the banks and the Postal Giro were unable to reach agreement regarding the coordination and pricing of these services. One important reason for this was Postal Giro's fear that it would lose market share, particularly through the loss of postal giro services provided to the public sector. The Postal Giro used low prices as an instrument of competition, to compensate for the fact that it offered a more limited product range than the banks. However, the Postal Giro still generated considerable profits, due to large, interest-free deposits by the state, which Postgiro invested in interest-bearing Treasury deposit accounts. This favourable position contributed to delays in the process of achieving coordination and more efficient payment systems.

At the beginning of the 1990s, Norges Bank presented several assessments and recommendations on topical payment system issues in Norway. Norges Bank proposed a merger of The Postal Savings Bank and the Postal Giro after The Postal Savings Bank had been converted into a limited company owned by the state and subject to the same framework conditions as commercial and savings banks. Norges Bank also proposed coordination of the

EFTPOS<sup>8</sup> systems and the ATMs systems of the postal service and the banks, of postal and bank giros, and the introduction of fees for payment transfers which reflected costs more accurately.

The problems in the Norwegian banking industry in the period 1988–1993 made it clear to the political authorities that rational, cost-efficient resource use also had to be given decisive weight in the payment systems. The subsequent improved efficiency of the state's financial management meant a significant cut in Postal Giro's revenues. The Postal Giro therefore had to make its operations more efficient, and generate revenue from other areas. The result was that the postal service became more positive about implementing coordination and introducing cost-based fees for its payment services. Gradually, satisfactory solutions were found for these main issues. In June 1992, The Postal Savings Bank was demerged, and its name was changed to Norges Postbank (The Postal Bank of Norway). On 1 January 1996, Postbanken (The Postal Bank) was established through the merger of The Postal Bank of Norway with Postal Giro. As the new bank faced the same framework conditions as other banks, coordination solutions were quickly found. In 1996, an agreement was concluded with the bankers associations regarding the integration of The Postal Bank<sup>9</sup> into the banks' payment system infrastructure. In June 1998, the different bank and postal giro forms were replaced by a standard form.

### *Greater focus on efficiency and risk in the clearing and settlement systems*

Towards the end of the 1980s, greater international attention was focused on the systemic importance of the clearing and settlement systems. In connection with the reorganisation of Norges Bank in 1985, the newly established Financial Markets Department was given primary responsibility for policy work in the payment systems area. The department's international contact with other central banks and international organisations like the Bank for International Settlements (BIS), the EEC/EU<sup>10</sup>, the IMF and the OECD contributed to a strengthening of the focus in Norway on payment system risks. This trend was accentuated when Norion Bank was placed under public administration in October 1989. It was discovered that existing payment systems were unsuited

<sup>8</sup> EFTPOS: Electronic Funds Transfer at Point of Sale, the banks' systems for card payments at points of sale.

<sup>9</sup> In 1999 Postbanken (The Postal Bank) was merged with Den norske Bank (DNB).

<sup>10</sup> When the Maastricht Treaty entered into force on 1 November 1993, the European Economic Community (EEC) changed its name to the European Union (EU).

to dealing with the risk exposure which arose when one of the banks in the payment process was unable to meet its liabilities. It became important for Norges Bank to identify measures which could both limit total risk in the payment system and clarify the risk faced by individual participants.

In response to the international impulses and the increasing attention on payment system risk also in Norway, the focus of Norges Bank's payment systems activities shifted at the beginning of the 1990s, with increased emphasis on the stability of the financial markets and the reduction of payment system risk. However, there was still no separate statutory regulation of the payment systems area. In response to feedback from various bodies, including Norges Bank, the Ministry of Finance appointed the Banking Law Commission in April 1990 to review the financial sector legislation and examine the need for statutory rules on payment transfers. In November 1993, a working group<sup>11</sup> within Norges Bank presented a report that evaluated which payment system tasks (other than bank notes and coins) Norges Bank should focus on in the future. The report concluded that Norges Bank had a dual responsibility in relation to the Norwegian payment system, namely:

- 1) Responsibility for system security, i.e. to concentrate on the large, open, national payment systems linked to clearing houses and systems for Norges Bank's gross settlement operations.
- 2) Responsibility for cost-efficient payment systems, i.e. to concentrate on the large, national payment systems linked to deposit accounts, such as postal and bank giro, payment cards and the cheque system.

An important requirement for stable, robust payment systems, and thus for financial stability, is that interbank systems are designed so that the settlement risk faced by banks is manageable and that problems experienced by an individual bank are limited to that bank. In 1993, the banking industry and Norges Bank launched a joint project with the aim of developing a new settlement system for the payment transactions of the banks and the Postal Giro (see Section 4 on interbank systems). Norges Bank's new settlement system (NBO), a fully-fledged real-time gross settlement (RTGS) system, was launched in November 1999.

Towards the end of 1996, the Banking Law Commission presented its third interim report (Official Norwegian Report 1996:24) "On payment systems, etc." The Commission pointed out that banks and finance compa-

nies were subject to extensive regulations relating to the provision of financial services, control procedures, supervision, etc., while bodies which provided payment services were not subject to corresponding legislation. The purpose of statutory regulation was not to end self-regulation by the industry, but rather to supplement it. The Commission proposed that the establishment and operation of interbank systems should require a licence from the government, and that Norges Bank should act as the processing body for applications. It was proposed that Norges Bank should supervise such systems. While the normal practice in other Norwegian financial legislation was to give the licensing authority to the government with an option to delegate, in the case of interbank systems, licensing authority was given directly to Norges Bank. The Banking Law Commission's proposal also included statutory regulation of payment-service systems. A notification duty was introduced for such systems. The FSA was given responsibility for ensuring that these systems were organised and operated so as to achieve the objectives of secure, efficient payment and rational, coordinated delivery of payment services. The Commission's proposal was unanimous, except for a few individual points.

The Norwegian parliament adopted the Payment Systems Act on 17 December 1999, and it entered into force on 14 April 2000. The Act made Norges Bank the licensing authority for interbank systems. Such systems could not be established or operated without the permission of Norges Bank. The Act also gave Norges Bank, and to some extent the FSA, greater supervisory responsibilities. While Norges Bank was responsible for preparing macro-evaluations relating to well-functioning financial markets and the efficiency of interbank systems, the FSA had supervisory responsibility for institutions which could establish and operate payment service systems.

During the first half of 2001, Norges Bank's Executive Board approved three interbank systems and granted exemptions from the licensing requirement to four systems. The approved systems are subject to the supervision of Norges Bank, which may issue such instructions to them as it deems necessary. In the years 2001–2009, Norges Bank worked with the banks to modernise and improve the efficiency of NBO. Following extensive work, Norges Bank began using the new interbank settlement system (NBO) in April 2009.

The Ministry of Finance has overall responsibility for contingency preparedness in the financial sector. In 1999, the Ministry of Finance established a body with responsibility for notification, information and coordination in crisis situations. Norges Bank provided the body's management and secretariat. The other participants came from key financial infrastructure institutions and the FSA. The

<sup>11</sup> The internal working group was chaired by Deputy Governor Kjell Storvik.

contingency body was responsible for dealing with any problems connected to the transition to the year 2000. In October 2000, the continuity body's mandate was expanded, and it was renamed Beredskapsutvalget for Finansiell Infrastruktur (The Contingency Committee for Financial Infrastructure). The Committee was also tasked with supporting the implementation of contingency preparedness tests at the strategic level, and the development of guidelines on authority, responsibilities and reporting in crisis situations. In June 2010, responsibility for the management and secretariat of the BFI was transferred from Norges Bank to the FSA.

The FSA and Norges Bank have cooperated closely in relation to tasks and areas in which both institutions are engaged. To avoid unnecessary duplication of work, a division of responsibilities has been established. The cooperation has been systematised in the form of regular meetings between the executive management and specialist departments of the FSA and Norges Bank. The two institutions also cooperate on the preparation of reports and human resource development.

In the payment systems area, Norges Bank has engaged in very useful cooperation with Nordic and certain other central banks (e.g. Bank of England, Federal Reserve) and international institutions, such as the BIS, the European Central Bank (ECB) and the European Commission. In addition to regular specialist meetings, Norges Bank staff have been seconded to the payment systems departments of institutions such as the ECB, the European Commission and the Bank of England. In addition, Norges Bank has arranged various seminars and conferences on payment systems, which have attracted a wide range of international participants.

### 3. Payment service systems

#### *Bank notes and coins*

Throughout the period 1945–2010, Norges Bank had primary responsibility for the issue, quality and distribution of bank notes and coins. However, Norges Bank's actual tasks relating to cash, and its division of work with the banks, underwent major changes during this period. On 1 January 1962, the production firm Den Kongelige Mynt (DKM, the Royal Mint) was transferred from the Ministry of Finance to Norges Bank. Towards the end of the 1980s, Norges Bank began offering cash-related commercial services in addition to the "basic services" which it was obliged to deliver by law. In respect of these services, the customers were to cover all costs. Over time, the commercial activities of Norges Bank's district branches grew to constitute a considerable volume.

Norges Bank's overall responsibility for efficiency in the payment system also included responsibility for comparing the costs of using bank notes and coins with the costs of using other means of payment. Thus, ensuring the greatest possible use of cash was not an objective. However, one aim was to ensure that Norway had a suitable range of coins and bank notes. In the period 1980–1999, various coins and notes were phased out, while 10 and 20 krone coins and the 200 krone note were introduced. In addition, the years 2002–2004 saw upgrades of the 50, 100 and 200 krone notes.

The Norges Bank Act did not require that the central bank itself necessarily had to produce and distribute bank notes and coins. In the latter half of the 1990s, Norges Bank's tasks in and organisation of the area of cash were re-evaluated. Following extensive discussions, it was decided to demerge the regional branches into a company tasked with handling cash. In 2001, along with a number of banks, Norges Bank established Norsk Kontanthåndtering AS (NOKAS). This company was given responsibility for handling and distributing cash in Norway, and was allocated premises in Norges Bank's former regional branches. In January 2006, Norges Bank sold its stake in NOKAS.

Some of Norges Bank's statutory services, such as the destruction of bank notes and testing the authenticity and quality of cash, were outsourced to NOKAS in the early 2000s. Norges Bank had to pay for these services, and was left with the more strategic functions relating to bank notes and coins. During the remainder of the 2000s, Norges Bank continued to rationalise its cash-related tasks. DKM was sold to a private company and renamed Det norske Myntverket (The Mint Works of Norway) in 2003. Since then, The Mint Works of Norway has supplied Norges Bank with coins and commemorative coins. The activities of Seddeltrykkeriet (NBS – the bank note printing works), were gradually wound down, and the printing works were closed in 2007. Since then, Norges Bank has bought bank notes from foreign suppliers, and a major part of the work involved in handling and distributing bank notes and coins has been undertaken by the banks and other market participants.

As shown in Table 1, bank notes and coins accounted for an ever-smaller proportion of the public's means of payment in the period 1946–2010. As a percentage of mainland Gross Domestic Product (GDP) and narrow money (M1), the proportion of bank notes and coins dropped from 16.2 percent and 40.4 percent respectively in 1946 to 2.6 percent and 6.4 percent respectively in 2010. In 2010, both proportions were lower than in most other advanced countries.

**Table 1: Developments in bank notes/coins circulation and M1, 1946–2010**

Year	Cash in circulation annual average	GDP, nominal <sup>1</sup>	M1 at year end	Cash as a percentage of GDP	Cash as a percentage of M1
1946	1,745	10,778	4,317	16.2%	40.4%
1950	2,337	16,425	4,814	14.2%	48.5%
1960	3,947	33,058	7,222	11.9%	54.7%
1970	7,034	90,929	15,838	7.7%	44.4%
1980	18,310	270,413	46,824	6.8%	39.1%
1990	29,708	640,694	111,835	4.6%	26.6%
2000	43,571	1,114,000	370,378	3.9%	11.8%
2010	50,450	1,945,000	790,124	2.6%	6.4%

<sup>1</sup>The figures for the period 1980–2010 are for mainland Norway.

Source: Norges Bank

### *The development of payment services based on deposit money*

#### **Cheques and payment cards**

In the 1950s, it was still common for wages to be paid in cash. During that decade, some new bank services emerged, such as regular direct debits and cash cheques (a form of traveller's cheque for use within Norway). Another innovation was the introduction of retail cards. In 1957, the first Norwegian retail card company, Bokreditt, was established. Retail cards could only be used in Norway. The use of cheque accounts in connection with wage payments did not become common in Norwegian banks until the 1960s. The general agreement between LO (The Norwegian Confederation of Trade Unions) and NAF (The Confederation of Norwegian Enterprises) from 1969 stated that the use of cheques should be free of charge, like wages paid in cash. In 1968, The Postal Savings Bank also launched a wage account system. The result was that cheque usage and banks' cost with cheque handling soared.

Norway had no international credit cards until Diners Club was granted an operating licence in May 1968. These cards could only be used by Norwegians in connection with business and representational travel abroad. Eurocard Norway was established as a separate company in April 1972, while several banks cooperated to establish VISA (Norway) in 1977. The use of a VISA card required the account holder to have funds in his/her bank account (debit card).

In the 1960s, there were no electronic card solutions. In the autumn of 1972, the banks presented plans for a Norwegian bank card solution (credit card). Norges Bank advised that the matter should be deferred until a more detailed assessment had been undertaken. The committee<sup>12</sup> which assessed the proposal for a Norwegian card solution in 1974 took a relatively positive view on devel-

oping an integrated debit and credit card for Norway. Due to uncertainty about the costs and the rapid technological development the committee recommended, however, that further work on the development of a Norwegian bank card should be suspended until various matters were clarified.

Throughout the 1970s, cheques and giros were the dominant payment services in addition to cash. New and expensive IT systems and increased cheque, giro use and other new services for which fees had not been set gave banks a cost problem. The payment systems costs had to be covered by other bank revenues. During the 1978 national wage agreement negotiations between LO and NAF, it was accepted that a system of fees should be introduced<sup>13</sup>. Moreover, the introduction of fees would help to ensure that customers chose the cheapest services, providing a basis for efficiency gains. Cheque use continued to increase until it reached its peak in 1984, but dropped considerably in the second half of the 1980s. Important reasons for this were that fees now had to be paid on cheque use and that the alternative (EFTPOS) was starting to spread.

The savings banks installed the first ATMs<sup>14</sup> in the autumn of 1977<sup>15</sup>. In the beginning, only cards issued to the banks' own customers could be used at the ATMs. Based on the security system used in the ATM solution, the savings banks launched a pilot project in 1984 involving card payments with "personal cards" at points of sale. These combined a bank card for use at ATM and in store terminals across Norway with a VISA card. The cards were fitted with magnetic strip technology.

The commercial banks were somewhat slower to launch cards and ATMs. In principle, the bank groups agreed that coordination should be ensured, so that an ATM

<sup>13</sup> The process of introducing prices in the Norwegian payment system is described in detail in the article, "A retrospective on the introduction of prices in the Norwegian payment system", by Asbjørn Enge and Grete Øwre in Economic Bulletin no 4/2006.

<sup>14</sup> Automated Teller Machine.

<sup>15</sup> The first cash points had been installed on a trial basis as early as 1970.

<sup>12</sup> A sub-committee of the Payment System Committee (NOU 1974:38, "Bank cards").

could be used even if the user was not a customer of the bank which owned the ATM. However, since the commercial banks regarded chip technology as a more interesting solution than magnetic strip technology, they decided that chip technology should be used in their EFTPOS system. The different technology choices of the two bank groups made their coordination discussions more difficult, and they concluded separate letters of intent with Norges Handelsstands Forbund and Norges Detaljistforbund (associations of Norwegian retailers), regarding the introduction of point-of-sale terminals at retail locations. This was followed by a period of strained relations between the two bankers associations.

In 1985, the Norwegian Bankers' Association introduced a "full set" of interbank fees applicable between commercial banks, and was granted dispensation for this agreement by the Norwegian Price Directorate. The directorate wanted the agreement on interbank fees to cover the savings banks as well, and the two bankers associations subsequently concluded a joint agreement. The fees were to be paid for the work the banks did for one another. In 1986, the two associations submitted an application to the directorate for dispensation from the Pricing Act in respect of agreements relating to guidelines for the division of costs between banks and businesses in connection with the installation of point-of-sale terminals in businesses. In Norges Bank's hearing statement<sup>16</sup>, it stated that one type of terminal should be used at each point of sale, and that coordination of the systems was necessary. Dispensation should therefore be granted for the bankers associations' agreement with the trade organisations regarding the distribution of costs. The Price Directorate granted the bankers associations' dispensation from the competition regulations. In 1988, major changes were made to the fee rates in the agreement on interbank fees. The objective was to highlight the differences between the most efficient electronic services and the least efficient manual services. Calculations showed that the costs associated with payment cards totalled just 30 percent of the costs associated with the corresponding manual services. It was therefore important to encourage increased card use.

In the late-1980s, the number of point-of-sale terminals at retail locations increased substantially. However, technical solutions which allowed magnetic strip cards and microprocessor cards to be treated equally by all terminals, had not yet been developed. In October 1987, the two bankers associations signed a coordination agreement which met some of the coordination needs. Coordination within EFTPOS was primarily based on dual-function terminals which could read both magnetic strips and chip

cards. The aim was to achieve, after a transitional period, full coordination of the terminal solutions used by grocery businesses of a certain size. In addition, in the late 1980s and early 1990s, significant standardisation of payment services was implemented through the EDIFACT (Electronic Data Exchange for Administration, Commerce and Transport) and TEDIS (Trade Electronic Data Interchange Systems) data technology standards. Internationally, work continued on the development of a shared framework for message types and specifications of what the individual message types should cover. The use of standards was crucial to ensure that all parts of the payment system could communicate with each other.

To cut costs and increase the spread of EFTPOS in Norway, the two bankers associations in 1991 agreed to establish a joint operational EFTPOS company. The company was named BankAsept, and was given operational responsibility for the running of a common infrastructure for card-based payment transfers via store terminals. An important feature with BankAsept was the low interchange fees compared to the international credit cards. In December 1992, The Postal Bank of Norway joined the cooperation, and was thus integrated into a common payment transfer infrastructure. BankAsept's new card system was launched in 1993. Its introduction created a basis for lower costs and a wider spread of EFTPOS in Norway. It was envisaged that all banks would begin using terminals connected exclusively to BankAsept by 1 January 1995. The technology was initially based on the magnetic strip on bank cards and online communication between terminals and card issuers for the purpose of coverage control. The 1990s saw the introduction of new payment services such as internet banking and cash withdrawals in connection with retail purchases. Payment services like cash cards/electronic cash, direct internet payments and ePay (a simplified solution for online card payments), and payment using mobile phones, were introduced in the latter half of the 1990s.

In 2000, the BankID cooperation was established. One of the main aims was that the use of BankID should enable all banks to develop sufficiently secure electronic services for open networks. In 2005, the banking industry agreed on a regulatory framework for the BankAcess service. This service can be used, for example, to pay for online purchases. Prior to this, international charge cards remained the dominant means of online payment. The government's "e-Norge 2005" action plan envisaged the facilitation of general use of standards-based electronic signatures by the end of 2005.

During the 2000s, various other new payment forms were launched, including electronic invoicing, SmartPay, internet games using electronic cash cards (Mondex), and

<sup>16</sup> Letter of 24 September 1986 from Norges Bank to The Price Directorate.

banking services for mobile telephones using text messaging (SMS). In-store postal services were launched in 2002, and in September 2007 DnB NOR and one of Norway's retail food and food-service industry groups launched an in-store banking service. In 2002, the largest Norwegian banks launched a cooperation project to prepare for the transition from magnetic strip technology to smartcard technology (chip technology), in Norwegian point-of-sale terminals. A chip can store more information than a magnetic strip, and is more resistant to copying. The transition to a chip solution for BankAxept cards has proceeded at a high pace since 2008, and all Norwegian BankAxept cards had incorporated a chip solution by end-2011.

Since charge cards and internet banking have offered the public cheap, efficient means of payment, the use of even newer payment services has been more limited in Norway than in many other countries. Several important changes were also made to Norwegian legislation. Among other things, the Financial Contracts Act of 1 July 2000 provided that float<sup>17</sup> would no longer be permitted. Further, changes to the Financial Contracts Act in November 2009 imposed a statutory transfer time for payments and new rules on the calculation of interest.

### Giro services

Postal giros were introduced during World War II, and were for many years the public administration's most important instrument of expenditure and revenue payments (e.g. social welfare payouts, tax receipts and indirect taxes). The giros were checked and posted centrally by the Postal Giro. The giro operations quickly grew to be the postal service's most important payment transfer activity. Bank giros, which were introduced right after the war, were not processed centrally until the early 1970s, meaning that bank giro transfers took a longer time. One reason for this was that the banks had different account number structures.

It became clear early on that having two giro solutions in a country as small as Norway was expensive and inefficient. In May 1959, the question of a standard form for the two giro systems was raised in the Storting (Norwegian parliament). In April 1960, a committee appointed by the Ministry of Transport and Communications proposed the following alternative solutions for improving the coordination of the giro systems:

- a standard payment form, or
- that the banks could also function as payment locations for postal giros.

The two bankers associations accepted the first alternative subject to certain conditions, but rejected the second. The postal service rejected both alternatives. New negotiations between the postal service and the two bankers associations regarding a joint giro system were initiated towards the end of the 1960s, but were also unsuccessful. It was not until 1977 that a uniform bank giro system was introduced for all banks in Norway. As it became more common to have a personal account for transactional use, there was increase in the use of both postal and bank giros. For a number of years, bank giros found it difficult to compete with the Postal Giro, but this changed. The fact that the banks had a much larger volume of accounts which could be used as transaction accounts, a feature which was further reinforced by the introduction of wage accounts, was an important factor behind the growth in the bank-giro market share. While postal giros had a market share of 70 percent in the late 1970s, the two giro systems were evenly matched by the mid-1980s.

The solutions offered by respectively the bank giro system and the postal giro system throughout the 1970s and 1980s were rather impractical. Payments from one system to the other took a long time. As discussed in Section 2, following many years of difficult coordination discussions, an agreement was signed in September 1995, and approved by the Ministry of Finance in May 1996, concerning the integration of the new Postal Bank into the commercial and savings banks' joint payment transfer system.

At the end of the 1980s, Bankenes Betalingsentral (BBS)<sup>18</sup> began using new technology which reduced the banks' payment transfer costs by registering forms electronically. In addition, autogiro (a direct debit solution) and other new payment services and standardisation systems were introduced. As part of the banks' work on making form-based giro processing more efficient, BBS introduced a new system in 1991, which was based on customers sending the giro forms they wanted charged to their account to BBS along with a consignment note. This had many common features with the system which the Postal Giro already used for its account holders. A significant proportion of the banks' giro processing costs were thus eliminated. In 1994, almost half of all giro forms were collected by mail giro.

At the end of 2010, cash on account comprised around 94 percent of the general public's total means of payment (M1). As shown in Chart 1, in the period 1987–2010, a strong migration occurred from payment services based

<sup>17</sup> The interest income received by a payment facilitator while a payment is on its way from the payer to the payee.

<sup>18</sup> A payment transactions processor and provider of payment solutions, see Section 4, second paragraph.

on paper-based instruments to electronic instruments of payment. More than 98 percent of all payments utilising cash on account were made electronically in 2010.

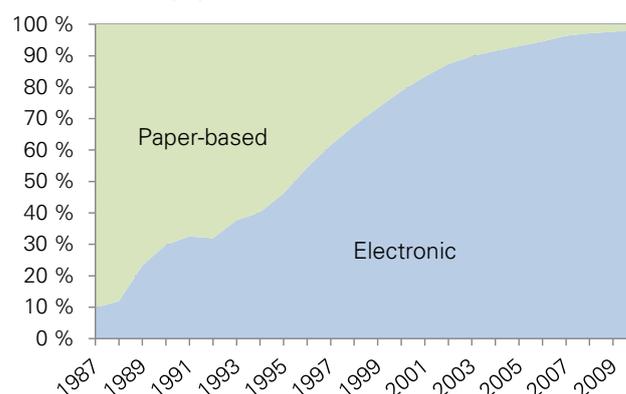
Chart 2 shows that the use of the three main groups of payment instruments has changed considerably. Cheque use peaked as early as the mid-1980s, and its decline continued in the 1990s and 2000s. Card use increased strongly from the late 1990s onwards. By 2001, payment cards had become the most popular instrument of payment in Norway. Calculations undertaken in 2007 showed that the number of card transactions at points of sale comprised around 75 percent of the total number of transactions. The remainder consisted of cash transactions. In terms of turnover value, card transactions accounted for 86 percent of total turnover in 2007, while cash transactions accounted for just 14 percent<sup>19</sup>. The number of electronic giro transactions also increased greatly in the 1990s, while the paper-based solutions lost ground.

The giro field has also seen major changes with regard to the solutions used. This is apparent from Chart 3. In 1998, the number of electronic giro transactions was almost equal to the number of paper-based giro transactions. The growth in the electronic solutions intensified in the period 2000–2010, and by 2010 paper-based payments accounted for only 5 percent of the total number of giro payments. One important reason for this change was that Norwegian banks began using the internet as a channel for the payment of bills (giro services) in 1996, and by 2010 internet banking payments accounted for 66 percent of all bill payments.

The transition to electronic payment services has brought with it a noticeable increase in bank productivity in the payments field. Table 2 sets out some key indicators of bank productivity, and shows that the costs per transaction have fallen substantially. This has helped banks to cover an ever-larger proportion of their associated costs with the revenues generated by account-based payment services.

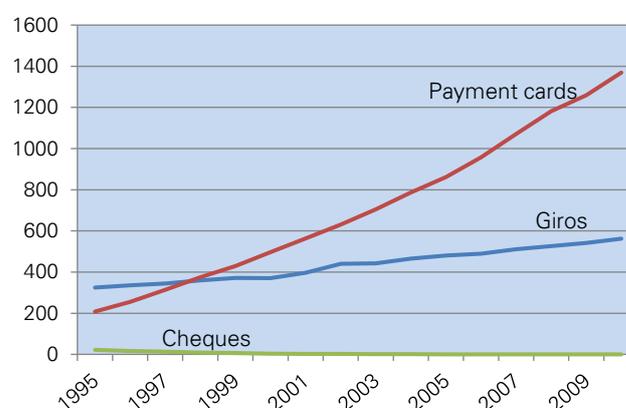
<sup>19</sup> Norges Bank's cost survey 2007, see Staff Memo no. 4, 2009, "Costs in the Norwegian Payment System".

**Chart 1:** Proportions of paper-based and electronic instruments of payment, number of transactions



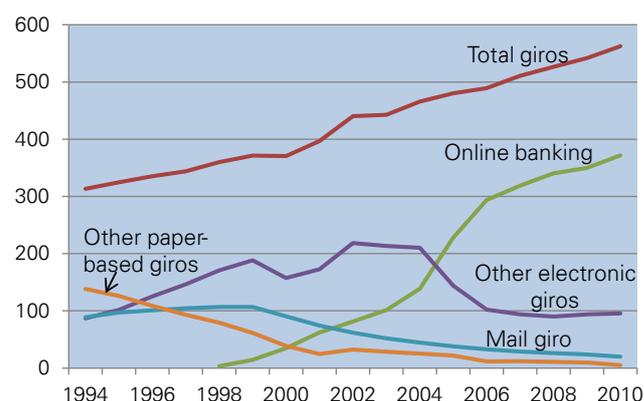
Source: Norges Bank

**Chart 2:** Development in the use of cards, giros and cheques 1987-2010, number of transactions



Source: Norges Bank

**Chart 3:** Development in the use of different giro instruments 1994-2010, number of transactions



Source: Norges Bank

**Table 2:** Indicators of bank productivity for payment services, 1988–2007

	1988	1994	2001	2007
Payment Services Costs (NOK billion)	6.0	7.0	6.6	5.4
Costs as a percentage of GDP	0.59%	0.61%	0.38%	0.24%
Costs per payment transaction (in NOK, rounded)	16	12	6	4
Number of bank transactions (millions)	381	481	968	1,512
Number of bank branches	2,200	1,600	1,429	1,260
Number of full-time employees in banks (thousands)	33	23	23	20

## 4. The interbank system

### *Development of real-time settlement systems*

Norges Bank has been the settlement bank for Norwegian banks since 1898. Initially, Norges Bank organised settlement for Oslo Clearing House, a clearing association of commercial banks in Oslo. Any receivables or debts were credited/debited to the accounts of the banks in Norges Bank. The savings bank system had access to this clearing function through Fellesbanken. Although it was considered natural for the central bank to have this function, the function was not based on any particular legal authority. However, new technical solutions were required to ensure that the banks could handle the increased transaction volume. At the end of the 1950s, closer EDP-related cooperation between the banks was proposed. In December 1963, the three major commercial banks<sup>20</sup> formed the joint processing centre *Integrert Databehandling (IDA)*. The savings banks, *Fellesbanken A/S* and the Savings Bank Association, established a joint data processing centre – *Fellesdata* – in 1965.

Throughout the 1960s, large-scale investments were made in both the commercial and savings bank sectors to make clearing and investment more efficient. The introduction of machine-readable code was an important prerequisite for the electronic processing of payment orders. Such code was initially based on MICR (Magnetic Ink Character Recognition). Over time, OCR (Optical Character Recognition) was introduced. An important requirement for efficient processing was a standardised accounts system structure. In 1971, the other commercial banks joined the IDA clearing system. Cooperation was initiated with *Fellesbanken*, which took responsibility for cheques drawn on the savings banks. BBS began operating in 1973. The Postal Giro was the accounting centre for all giro, ATM and EFTPOS transactions undertaken through the postal service. EFTPOS transactions involving post offices and banks were cleared bilaterally between the Postal Giro and the individual banks through the adjustment of the banks' postal giro accounts.

As touched upon in Section 2, around 1990 Norges Bank became more concerned about identifying risk in the clearing and settlement systems. The report by the Storvik group (1993) on Norges Bank's prioritised future tasks in the payment systems area identified responsibility for security in the clearing and settlement systems as a main task. The following tasks were to be given special priority:

- Clarifying the scope and distribution of risk.
- Identifying measures to limit total risk exposure within the systems and ensuring that these responsibilities were enshrined in written agreements between the parties.
- Clarifying what requirements needed to be imposed with regard to information provided by the banks in connection with settlement in Norges Bank.
- Helping to ensure that clear contingency preparedness procedures were established for the settlement of payments.
- Assessing the need for more frequent settlement in Norges Bank.
- Developing a new system for online coverage control of the banks' accounts in Norges Bank and a new system for direct, gross settlement of large payments in Norges Bank's settlement system (NBO).

In March 1993, Norges Bank launched a project aimed at developing and implementing a new settlement system for the payment settlement transactions of the banks and the Postal Giro. The steering group for the project included representatives from the bank associations, The Postal Bank of Norway/Postal Giro and BBS. The main objectives of the new system were to reduce risk in, and increase the efficiency of, Norway's payment settlement system, and to ensure the greatest possible degree of real-time settlement. Beyond that, the system was to be a combined gross and net settlement system, as large payments would be settled directly and individually in Norges Bank. Smaller payments would continue to be cleared before being sent collectively for final settlement in Norges Bank. In addition, Norges Bank was to clarify the system of agreements relating to payment settlement with BBS and the bank associations.

A real-time settlement and ledger system required a real-time accounting system. In November 1992, Norges Bank began using a new accounting and ledger system. It was also necessary to establish real-time coverage control of the banks' and the Postal Giro's settlement accounts in Norges Bank. This work was completed in 1995. At the beginning of the 1990s, the banking industry had developed a combined clearing and liquidity information system in BBS. The system was called NICS (Norwegian Interbank Clearing System), and was intended to handle mass payments and large SWIFT (Society for Worldwide Interbank Financial Telecommunication) transactions. In 1995, Norges Bank and the banking industry agreed to begin using NICS as a channel for information and transactional exchanges between the banks and Norges Bank in connection with the establishment of a real-time system. A cooperation project, the NICS/NBO project, was subsequently initiated and tasked

<sup>20</sup> Den norske Creditbank (DnC), Bergen Privatbank and Christiania Bank og Kreditkasse (Kreditkassen).

with developing a solution that gave the individual banks information from NBO. The data technology solution for balances, drawing rights, entries and pending transactions was called the NICS/NBO liquidity summary, and was launched for all banks in October 1997.

The transition to the new settlement system meant that the banks had to manage their liquidity continuously throughout the day. To ease the banks' transition from liquidity management at the end of the day to liquidity management throughout the day, Norges Bank expanded its "overnight" loan system (D-loans), to apply during the day as well. From March 1999, gross settlement could be notified electronically via NICS and be automatically registered in NBO throughout the day. In addition, a cap of NOK 100 million was introduced on the size of payments which could be included in NICS SWIFT clearing. The new settlement system (NBO) was launched on 24 November 1999. This made NBO a fully-fledged RTGS system, i.e. a system which handled gross transactions in real time. To help ensure more efficient utilisation of settlement services, Norges Bank began to charge for the services on 1 July 2001. In the setting of the prices, emphasis was given to the considerations that the prices should provide proper incentives and that the price structure should be simple. NBO satisfied international standards and recommendations in the field, a prerequisite for Norway to be able to link up with equivalent systems in other countries at a later date.

### *Further development of NBO and NICS*

In August 2001, Norges Bank launched a wide-ranging project to modernise and effectivise NBO and assess the division of responsibility between private banks and Norges Bank in the settlement system. The conclusion was that Norges Bank should remain responsible for settlement, although it did not need to be responsible for the technical operation of the system. In September 2003, the IT-operational and administrative responsibility for Norges Bank's settlement and central bank systems was outsourced to Ergo Integration<sup>21</sup>. Norges Bank began preparing for the purchase of a new solution for the settlement system in August 2004. The existing system, parts of which incorporated technology dating to the 1980s, was approaching the end of its technical operating life. In addition, Norges Bank's tasks had changed considerably since the creation of the existing system, and expertise relating to the technology in the system was becoming scarce. Work on the renewal of the settlement system was based on the principles that the new system should be a standard system and that communications

with participants and other systems should be routed through a very limited number of internationally recognised and standardised interfaces<sup>22</sup>. The new system was to enable banks to send transactions electronically to Norges Bank in the SWIFT format. Norges Bank began using the new interbank settlement system on 17 April 2009. The banks pay for account and settlement services, and the income is to cover the relevant costs which Norges Bank incurs in providing these services.

The banks established the NICS operations office in 2000. The office holds the licence and has operator responsibility for the NICS interbank system, and was intended to have the contact with Norges Bank envisaged in the Payment Systems Act. In the period 2006–2010, the technological platform of NICS was gradually replaced. The aim was to make the system more secure and more flexible, and to cut costs. The renewal of the technological platform was also used to make functional improvements to NICS. In 2008, the first transactions (card transactions), were processed in NICS using the new technological platform. In 2010, the clearing of mass transactions (excluding card transactions), and the clearing of SWIFT transactions were merged. At the same time, a cap of NOK 25 million was introduced on the size of all types of transaction which could be included in such clearing. Larger transactions were to be settled gross. Chart 4 illustrates the Norwegian interbank systems.

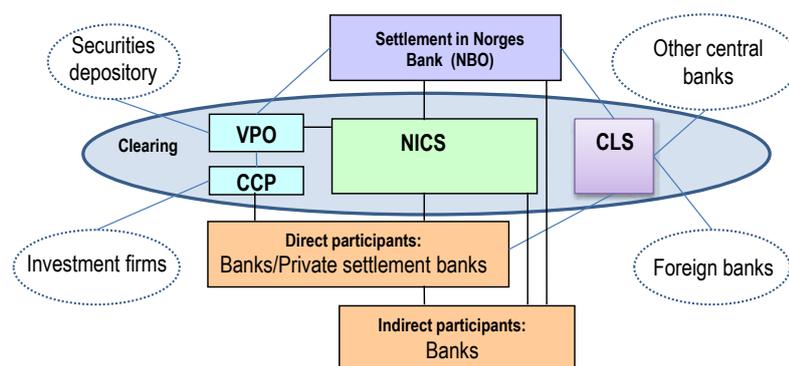
As shown in Chart 4, Norges Bank represents the highest level of the settlement hierarchy. NBO receives clearing statements via NICS and the securities settlement function (VPO), and payments are submitted individually by Norwegian banks via NICS and CLS<sup>23</sup>. NICS transfers gross and net settlement payments. Gross settlement includes all large payments of more than NOK 25 million and specially flagged transactions. These transactions are settled immediately in Norges Bank (real-time). Small payments such as card and giro payments are settled against one another in NICS before the net settlements are sent on to NBO or the settlement systems of DnB NOR (now DNB) and Sparebank 1 Midt-Norge. At the end of 2010, 142 banks were participating in NICS and in the daily net settlements. In the context of the settlement of clearing accounts, a distinction can be made between the 21 banks whose positions are settled directly in NBO and the other banks, whose positions are settled via the two other settlement systems. In the period 2000–2010, the average daily turnovers in NICS and NBO fluctuated between NOK 175–255 billion and NOK 144–226 billion respectively, with the lowest value re-

<sup>21</sup> From 2010 Ergo Integration merged with the Danish company SDC (Sparekassernes DataCentraler) to form Nets.

<sup>22</sup> The desire to build a standard system had to be modified somewhat during the development of the system.

<sup>23</sup> CLS is an abbreviation for the Continued Linked Settlements settlement system.

**Chart 4: Interbank systems in Norway**



Source: Norges Bank

corded in 2000 and a peak during the financial unrest of 2007 and 2008.

Most large banks (including the two private settlement banks), participate directly in net settlement in Norges Bank. In the case of banks which conduct settlement via DNB or Sparebank 1 Midt-Norge, the latter two banks take over the net positions and settle in NBO on the banks' behalf. The banks can cover their settlement debts by drawing on deposits or taking up secured day loans in Norges Bank. Banks which participate through DNB or Sparebank 1 Midt-Norge can draw on their credit facilities with these two banks. Correspondingly, payments for trades in shares, equity capital certificates, certificates and bonds undertaken via VPO (security settlement, see Section 5), and the cash positions, are sent to NBO for settlement. In the case of currency trades involving NOK, a large proportion of settlement occurs in CLS, which in turn settles its net positions in NBO.

In 1999, the IMF and the World Bank launched a programme intended to evaluate and then put forward proposals for the improvement of financial stability in the member countries, the "Financial Sector Assessment Program" (FSAP). In connection with the IMF's FSAP consultation with Norway, an evaluation of the Norwegian interbank system<sup>24</sup> was undertaken in the autumn of 2004 and early part of 2005. NBO was assessed by reference to the "Core Principles for Systemically Important Payment Systems"<sup>25</sup>. The FSAP report was presented in June 2005. The IMF proposed some measures to improve the system further, but agreed with Norges Bank's own assessment that NBO satisfied all relevant international standards.

<sup>24</sup> This evaluation is available at <http://www.imf.org/external/pubs/ft/scr/2005/cr05200.pdf>

<sup>25</sup> BIS: "Core Principles for Systemically Important Payment Systems", CPSS Publication no. 43, January 2001.

## 5. Securities settlement (VPO)

Until the mid-1980s, the Norwegian system for trading in securities was less advanced than the systems of other Scandinavian countries in many respects. The starting point for the modernisation of Norwegian securities trading is marked by the entry into force of the Securities Registry Act in October 1985 and the formation of Verdivapirsentralen (VPS, Norway's central securities depository), in the same year. Norges Bank became the settlement bank for securities transactions settled via the VPS. Financial institutions with the status of account operators in the VPS (stockbrokers, managers/banks, mortgage companies, etc.), could participate in the settlement operations. In 1987, Norsk Opsjonsentral AS (NOS, The Norwegian Option Centre) was established, and it was agreed that Norges Bank, on behalf of NOS, would undertake day-to-day cash clearing between buyers and sellers in connection with trading in options and futures.

Throughout large parts of the 1990s, efforts were made on various fronts to improve the VPO system and make it more efficient. These efforts were partially suspended in October 1998, when the VPS began cooperating with the central securities depositories of Sweden and Denmark on a study of a possible joint settlement and clearing centre for securities traded in the three countries (the SSSS – the Scandinavian Securities Settlement System). In December 1998, Norges Bank, in its capacity as the settlement bank for securities settlement in Norway, formed a working group with Sweden's Riksbank and Denmark's Nationalbank that focused on securities settlement in the Nordic region. The objective was to give market participants highly secure and user-friendly access to the Scandinavian securities market. However, in its report, the working group expressed doubt about both the

cost assessments and the market assessments regarding the SSSS.

In November 1999, it became clear that the SSSS would not be established. Consequently, Norges Bank and the VPS resumed their efforts to effectivise and improve the Norwegian securities settlement system. Solutions were considered for the introduction of intraday security, multiple net settlements per day and, in the long term, gross settlement. The Payment Systems Act gave expanded legal protection to clearing and settlement contracts, thus reducing the risk associated with securities settlement. In addition, the new Securities Register Act, combined with new technical solutions developed by the VPS and Norges Bank, allowed multiple securities settlements per day. The system of two net settlements was introduced in March 2003.

The securities settlement system was not considered in detail in the IMF's FSAP assessment of the Norwegian payment system conducted in 2004–2005. However, the IMF pointed out the concentration risk presented by the fact that the largest bank was issuing guarantees to a large proportion of investment firms. The IMF's recommendation that steps should be taken to reduce the market and liquidity risk in VPO has been partially implemented, but some work remained to be done as at mid-2012. At that time, the work being done to amend the VPO was focused on adapting to the plans of the ECB and the EU political authorities to develop a centralised, euro-denominated securities settlement platform, TARGET2-Securities (T2S).

## 6. Cross-border payments

At the end of the 1960s, work began on making cross-border payment transfers more efficient. Until that time, people had to transfer money by letter using cheques, or by telex (with a subsequent confirmation). The establishment of SWIFT in 1973 heralded the development of a shared, computer-based communications network between the member banks to replace the traditional money transfer system. The new system enabled any bank to notify any other participating bank of money transfers and, correspondingly, to receive such notifications. SWIFT II was introduced in 1984. It represented a further development of the first SWIFT solution, and also featured new, simpler types of notification and greater capacity. SWIFT-Net was launched in 2001. In 2003–2004, SWIFT made technical changes which enabled the introduction of more user services with higher levels of security, reliability and availability.

In the past, cross-border payments often involved banks and payment systems which were not integrated, and thus required more resources to implement than

domestic payments. This resulted in a large number of manual operations. One exception was the international card systems (VISA, MasterCard, Diners Club and American Express), which had established their own international networks. Fully automated payment transfers between countries required both customers and banks to use international standards that eased communication. In 1997, the banks in the EU/EEA<sup>26</sup> area introduced a standard for account numbers – IBAN (International Bank Account Number) – and began using SWIFT's BIC (Bank Identification Code) structure<sup>27</sup>. IBAN is a standardised addressing mechanism for banks. IBAN allows a despatching bank to be sure that the recipient's account number in another country is correct, by undertaking a simple check before despatch. The use of IBAN and BIC has become mandatory for transactions between countries in the EU/EEA.

To facilitate the efficient implementation of joint monetary policy in the Euro area and enable quick, secure settlement of payments between member countries, the EU countries' joint settlement system, TARGET<sup>28</sup>, was made operational in January 1999. In view of the competition conditions faced by Norwegian banks in connection with foreign payment transfers, Norges Bank raised the possibility of Norwegian membership of TARGET with the ECB. However, the ECB concluded that TARGET was only open to central banks in EU countries.

In 2002, the European banking industry, under the auspices of the European Payments Council (EPC), launched a project intended to ensure more efficient and cheaper payment services in Euros. The project was named the "Single Euro Payments Area" (SEPA). The Norwegian banking industry has participated in the project, which may have consequences for payment transfers within Norway. The final introduction of the SEPA solutions as European payment will occur in February 2014.

ECHO (Exchange Clearing House) was established in 1995, and engaged in the clearing and settlement of currency contracts in 16 currencies on a multilateral basis, for an identical number of international banks (the Euro was introduced in January 1999). In 1996, Norges Bank consented to ECHO in London accepting transactions in Norwegian krone for settlement. In 1997, ECHO was bought by the company behind "Continuous Linked Settlement", CLS Services. The Norwegian participants in CLS were DNB, Kreditkassen (through the Nordea system), and Fokus (through Den Danske Bank). Large

<sup>26</sup> European Economic Area: EU-area plus Norway, Iceland and Liechtenstein.

<sup>27</sup> BIC was used in the SWIFT system before IBAN began to be used.

<sup>28</sup> TARGET: Trans-European Automated Real-Time Gross Settlement Express Transfer.

foreign banks with a presence in Norway were also linked to CLS. The Norwegian, Swedish and Danish krone were included in CLS in September 2003. CLS has expanded its service range and the number of settlement currencies several times. In 2010, it offered settlement in 17 currencies, and more than 50 percent of all currency trades globally were settled through CLS.

## 7. International influences

Norges Bank's monitoring and supervision of the payment system has largely been based on international recommendations, primarily the recommendations of the BIS, the ECB and the European Commission. As addressed in Sections 4 and 5, the BIS has developed a set of core principles that should govern the design and operation of payment systems. The recommendations "Core Principles for Systematically Important Payment

Systems"<sup>29</sup> are regarded as the international norm for design and operation payment systems, and the Norwegian Payment Systems Act is consistent with these principles.

As a member of the EEA, Norway has had to implement in Norwegian law a number of legislative initiatives in the payments area which have been deemed to be EEA relevant. Until the early 1990s, a significant risk in the clearing and settlement systems was a lack of legal clarity about when a settlement was final and irrevocable. The EU Settlement Finality Directive helped to reduce this risk in the EEA area, and has been incorporated into Norwegian law. Through the introduction of the FSAP in 1999, the IMF and the World Bank have also taken a more active role in the payment systems area. This encompasses both international recommendations and assessments of the strengths and weaknesses of a country's settlement and payment systems.

<sup>29</sup> Now replaced by "Principles for financial market infrastructures".