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**Research Report**

## Changes in Norges Bank's Role and Activities in Cash Supply and Distribution

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# STAFF MEMO

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NO. 9 | 2017

TROND EKLUND,  
SVEIN NYGÅRD AND  
LEIF VEGGUM



NORGES BANK

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ACTIVITIES IN CASH SUPPLY  
AND DISTRIBUTION

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*Norges Bank has made considerable changes in its role and activities in cash supply and distribution since the turn of the century, with the aim of enhancing efficiency in cash distribution and the payment system as a whole. Norges Bank's cash distribution responsibilities have been clarified, and the Bank has assumed a defined role as wholesaler. In addition, Norges Bank has outsourced note and coin processing services to a considerable extent compared with other central banks and currently relies on purchasing these services from external operators.*

*This article presents the changes and reviews the assessments and reasoning behind the choices made in the light of Norges Bank's responsibilities. The final section examines the consequences of the changes. The overall assessment is that the changes have increased efficiency in the cash supply and enhanced efficiency in the payment system as a whole.*

*This Staff Memo is a slightly adjusted version of an article published in Norwegian in 2010<sup>2</sup>. Due to great interest of colleagues from other central banks, we present the changes in the Norwegian cash cycle in English.*

## 1 Norges Bank's responsibility for cash supply and distribution

The Norges Bank Act assigns Norges Bank responsibility for issuing banknotes and coin and promoting an efficient payment system. This responsibility places the following obligations on Norges Bank:

- *Obligation to supply notes and coins.* This involves issuing notes and coins to meet the needs of the general public and ensuring that a sufficient quantity of notes and coins is available.
- *Obligation to renew notes and coins.* This relates to the quality of notes and coins in circulation and entails an obligation to receive

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<sup>1</sup> The views expressed are those of the authors and do not necessarily reflect those of Norges Bank.

<sup>2</sup> Penger og Kreditt (Economic Bulletin) 2/10, pp. 21-31.

worn and damaged notes and coins for destruction and supply fit notes and coins suitable for circulation to replace them.

- *Obligation to redeem notes and coins.* Norges Bank is obliged to redeem notes and coins for a period of 10 years after they have been withdrawn from circulation.

Norges Bank is the “bankers’ bank” and has an obligation to receive deposits from banks. Banks order cash from Norges Bank and deliver surplus stocks to Norges Bank. Transactions with fit notes and coins are charged. Similarly, the general public orders notes and coins from banks and delivers surplus cash to banks. Norges Bank thus supplies banks with cash, and the banks are responsible for further distribution to the public.

Within the framework of the Norges Bank Act, Norges Bank determines which services in the cash supply system as a whole that are Norges Bank’s responsibility, the scope and scale of these services and the conditions for their use (including assigning responsibility for costs). In addition, Norges Bank decides how to organise its responsibilities, which tasks the central bank will perform itself and which tasks to outsource. These decisions are based on the objective of promoting efficiency in cash supply and distribution and the payment system as a whole. Payment system efficiency as an objective for Norges Bank follows directly from Section 1 of the Norges Bank Act.

Of the responsibilities imposed by law, there is one that only Norges Bank can carry out. This is the actual issue of notes and coins, i.e. functioning as debtor for issued notes and coins. The other tasks can be performed by others, but Norges Bank must ensure that they are carried out and that their execution is consistent with the requirements of the central bank. For some tasks, Norges Bank must cover the cost irrespective of whether the Bank performs these tasks. This applies to note and coin production and redemption of defective and expired notes and coin. The decision as to whether Norges Bank should cover the cost of other tasks or perform these tasks itself is also based on an assessment of overall efficiency as well as provisions in competition legislation.

## 2 Payment system efficiency

The payment system includes all methods, arrangements and devices that can be used to execute or transfer payments. In an efficient payment system, different means of payment and payment instruments that are appropriate to the needs of the users and payments are available and can be executed quickly, securely and with the lowest

possible use of resources. When the prices and properties of the various payment instruments are known to the users, they will choose the solutions that they find most suitable overall. If the prices charged to users reflect the cost of producing the services, users' choices will result in an efficient overall use of resources.

There are primarily two means of payment: deposit money and cash. While deposit money is largely transferred electronically, transferring cash requires physical handling, whether cash is in circulation as a payment instrument between banks, businesses and the general public or when it is out of circulation and is held by Norges Bank. Transport and storage of notes and coin requires a sizeable logistics system and involves substantial costs for many operators. Norges Bank regards it as an important task to enable operators to conduct their operations in such a way as to maximise efficiency in the payment system: There should be an appropriate distribution between cash and deposit money, and cash supply and distribution should be conducted as efficiently as possible while ensuring that security is satisfactory.

## 2.1 Efficient distribution and handling of cash

In order for cash to function as an efficient means of payment, the following must be in place:

- Confidence
- Properties appropriate to users' needs
- Availability
- Efficient processing

*Confidence* means that users of cash are in no doubt that cash represents claims on the central bank.

*Properties appropriate to users' needs* refer to denominations, design and durability (that they can withstand different types of handling), that genuine notes and coins are easy to recognise under various conditions, etc.

*Availability* implies that cash is readily available to the general public and businesses, making it unnecessary to store large amounts of cash.

*Efficient processing* means that transport, counting, sorting, destruction etc. is conducted on an adequate scale and that there is an appropriate division of responsibility between Norges Bank and others involved in cash processing, so that tasks are executed with the lowest possible use of resources.

# 3 Norges Bank's cash distribution policy – important assessments and considerations

## 3.1 Cash supply functions and services that should be the responsibility of Norges Bank

In addition to fulfilling direct statutory requirements, Norges Bank should in general only have responsibility for functions that the market is unable to provide efficiently or where Norges Bank is likely to have a comparative advantage and can therefore provide more secure or efficient solutions than the market. Even when Norges Bank is responsible for a function, the tasks under the Bank's responsibility may wholly or in part be performed by others, as mentioned above.

### **Production and design of notes and coins**

As issuer, Norges Bank is responsible for designing notes and coins and for ensuring that an adequate quantity is produced with the appropriate design and quality. Notes and coins must be designed in such a way that they are difficult to copy, that banknotes include features to enable users to readily distinguish between genuine and counterfeit notes and that other properties ensure that notes and coins function efficiently as a means of payment. Norges Bank is also responsible for ensuring that the authenticity features are widely known. This is especially important in relation to the average consumer, who does not have access to special tools to verify that notes and coins are genuine. Norges Bank decides on the design, while actual production may be carried out by external operators.

### **Supply of cash**

In principle, ensuring that society has access to cash is the responsibility of the central bank (obligation to supply cash). Norges Bank is the bankers' bank and supplies cash to banks. Banks in turn supply their customers through ATMs, through cash-back in shops and over the counter at bank branches or at contractual partners. In other words, Norges Bank has the role of wholesaler in cash distribution. Standards and packing requirements in connection with banks' withdrawal and deposit of notes and coins in Norges Bank should thus be formulated in such a way as to reflect Norges Bank's role as wholesaler.

Market participants are better positioned than Norges Bank to assess solutions for retail distribution, including distribution sites and

processing solutions. With full information about costs and prices for the various alternatives, operators will seek the most cost-effective solutions. This implies in principle that Norges Bank should supply banks from one site only. However, security considerations may indicate that stocks of notes and coins should be held at more than one supply site. Norges Bank is also better equipped to transport large amounts over long distances across regions than banks, partly because money is transported to and from the Bank with the assistance of the police. This may also be a reason for the central bank to have more than one depot and supply site and be responsible for a transport system that can function as the “central nerve” in cash supply and distribution. Within regions, however, the banks should be responsible for supplying cash to their customers and for cash distribution among the various banks and branches.

### **Cash Processing**

Norges Bank is responsible for note and coin destruction and for final authentication before destruction. Destruction and authentication may be performed by others, assuming that the central bank has established a satisfactory control system.

The banks are responsible for the quality sorting. To achieve an optimal quality of notes and coins in circulation, the central bank has issued rules for quality sorting so that notes and coins that are not fit for redistribution are actually removed from circulation.

Experience shows that in order to protect themselves against losses due to counterfeiting, banks, shops, cash centres and other market participants wish to perform their own authentication procedures to ensure that the cash accepted is genuine. This implies that there is no need for further authentication by Norges Bank other than that performed in connection with destruction. To verify that market participants' authentication procedures are satisfactory, Norges Bank should nevertheless authenticate a random sample of notes and coins delivered to the central bank for redistribution.

The market can demand more specific types of processing services than what follows from the required quality sorting defined by Norges Bank. The market participants should decide on the scope and form of these services on the basis of their needs and the costs of various alternatives. This will promote efficient solutions where the supply of services more accurately matches demand and that services are delivered by those who can do so with the lowest use of resources. Norges Bank should not therefore be responsible for or provide such processing services.



## 3.2 Covering costs and cost-effectiveness

In principle, users should cover the costs of using cash just as they do for using other means of payment. Prices that reflect the costs of different alternatives will give users an incentive to make cost-effective choices. However, certain factors indicate that Norges Bank should cover certain costs:

- Norges Bank acts on the assumption that its responsibility as issuer also includes a responsibility to replace notes and coins, which entails an obligation to cover the cost of redemption and destruction of worn, damaged and expired notes and coins.
- In principle, everyone who is in possession of notes and coins gives an interest-free loan to the central bank. This enables the central bank to invest and achieve a return on capital equivalent to this interest-free loan, thereby providing Norges Bank with income, called seignorage. Therefore, it may be argued that users thus cover certain costs related to cash by the interest-free loan. If users in addition were to cover all the costs related to cash distribution, they would cover more than the costs of using cash, and this would not be desirable in terms of efficiency. It would be difficult, however, to find a system where this net income is returned to those bearing the costs. A more appropriate solution is that Norges Bank covers some of the costs related to cash distribution. These should be costs that are otherwise difficult to allocate to the “correct” market participant without compromising incentive structures that are desirable in terms of efficiency.

On the basis of these assessments, Norges Bank will cover the following costs:

- Costs related to the design and production of notes and coins.
- Information about notes and coins to users.
- Costs related to receipt of damaged or worn notes and coins, as well as delivery of fit notes and coins suitable for circulation to replace them, so-called “no-fee services”. (Costs connected with ordinary deposits in and withdrawals from the central bank of cash fit for recirculation are covered by banks.)
- Authentication and destruction of damaged and worn notes and coins.
- Storage of cash in central bank depots and the cost of transporting cash between these depots.

# 4 Changes in Norges Bank and cash supply and distribution up to the year 2000

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## 4.1 Changes in tasks assigned to regional offices

Until the late 1980s, there were 20 regional offices of Norges Bank in addition to the main office in Oslo. The offices were established at a time when the banking system was in an early stage of development and transport and communications were by no means as advanced as they are today. The regional offices performed important tasks in addition to note and coin processing until the beginning of the 1990s. Some of these tasks were related to the implementation of banking and credit policy and regional policy, and the regional offices also performed various types of banking services for the government, among others. When changes were made in banking structure, credit market and regional and industrial policy regulation, and payment and securities services for the government, many regional office tasks were discontinued.

By the year 2000, activity at the regional offices was primarily concentrated on distribution and processing of notes and coin and the necessary related administrative functions. The offices continued to perform some other tasks, such as account balancing for banks, but this was also discontinued after a period. As a result of these developments, changes were made in the regional office structure and in the period 1988–91 seven regional offices were closed.

## 4.2 Changes in cash supply scheme

Cash transport between banks and Norges Bank was also changed in this period and coordinated transports increased. Cash ordered by banks from Norges Bank and surplus cash to be collected from banks and delivered to Norges Bank was transported regularly in armoured vehicles provided by security companies.

There were parallel developments in cash distribution between banks and their customers. Banks changed their branch networks and banknotes were increasingly delivered to customers via ATMs. In 1982, the number of ATMs was 330. By 1990 the number had increased to 1,775, rising to 2,119 in 2000. Cash was increasingly deposited in banks via night safes. As a result, new tasks were introduced, providing the basis for new commercial services in cash processing. Cash delivered via a night safe had to be checked and counted and banks had to pack and distribute cash to supply the various branches and

ATMs. Worn banknotes had to be removed and delivered to Norges Bank for destruction. ATMs require high-quality banknotes, increasing the need for quality sorting. In addition, banknotes for use in ATMs had to be packed in cassettes.

### 4.3 Expansion of Norges Bank's cash processing services

There was a potential for economies of scale and scope in conducting quality sorting for this purpose at Norges Bank as the Bank already performed automated quality sorting, primarily to remove notes for destruction. Norges Bank had high-capacity banknote sorting machines that were able to carry out authentication, quality sorting and automated destruction of notes in one and the same operation. Economies of scale and scope were thus exploited by performing services for banks (counting, sorting and quality control) at the same time. Banks increasingly requested so-called ATM fit notes in their orders of banknotes from Norges Bank, and in 1988 Norges Bank began to charge for ATM fit notes and coins packed in rolls. This was introduced to regulate demand as notes and coins were delivered in varying qualities and packing. Processing costs arose when cash was sent in to Norges Bank, but for practical reasons fees were only charged on distribution.

In the same year, it was decided that the regional offices would offer additional services on commercial terms. These included tasks traditionally performed by banks, such as verification and counting of night safe cash deposits and packing notes and coins for distribution to bank branches and ATMs.

These developments led to an expansion of the cash processing services at Norges Bank, and two categories of cash processing services were offered by the regional offices:

- *Basic services*, which included traditional services related to the distribution of notes and coin to meet society's needs. The tasks mainly comprised receiving, processing, storing and distributing notes and coin. Notes and coin were primarily received from banks and post offices, where processed note and coin products were also in demand. The notes were authenticated and sorted by fitness, and notes deemed unfit for recirculation were destroyed. In addition to new banknotes, banknotes in two categories of fitness were distributed: fit and ATM fit. Three coin products were supplied: in rolls, sorted by number in bags, and sorted by weight in bags. There was no fee for fit notes and weight-sorted coins in bags. These accounted for about 45% of

banknotes distributed by regional offices and 5% of coins. Fees were charged for delivery of ATM fit banknotes and coins packed in rolls.

- *Additional services*, which were additional cash processing services offered to banks and others. There were various types of services, including a night safe facility, receipt of unsorted coins for sorting by denomination (sorted coins were received without charge under the standard services), and filling and settling ATM transactions. Fees were set to cover the cost of performing these services.

The additional services could be regarded as pre- and post-processing related to the standard services. Coin sorting was an example of the first, and filling of ATM cassettes an example of the second. This illustrates that there was some overlap between standard and additional services.

In spite of the increasing role taken by other means of payment, the inflow of notes and coins under the standard services had grown considerably. Norges Bank had increased its cash processing efficiency by installing large banknote processing machines that also destroyed worn notes at the same time. Since no fee was charged for delivery of cash to Norges Bank, banks reduced their costs by delivering unprocessed cash instead of processing it themselves. Because of the efficiency measures, the number of person-years at Norges Bank had not risen accordingly.

Through the 1990s, Norges Bank's role in cash processing continued to expand and the Bank had a substantial market share. It is difficult to ascertain Norges Bank's market share related to commercial tasks. We do not know, for example, how much manual or automated quality sorting was performed by banks and others. Norges Bank's market share of sorting and packing for banks and post offices was estimated at about 70% (55% for notes and 95% for coins), and its market share for additional services at 20-25%.

Total cost of operating the regional offices was estimated at approximately 250 million kroner in 2000. Income from the sale of processed notes and coins as part of the basic services was approximately 39 million kroner in 2000, while income from additional services was about 47 million kroner. In other words, Norges Bank covered about 164 million kroner or two-thirds of the costs. The number of person-years was calculated at 340 in basic services and 102 in additional services. Calculations showed that the opportunity cost for

Norges Bank in a model where statutory tasks were carried out using 6 depots and a central destruction unit came to 56 million kroner. It was also calculated that costs for an external firm to operate depots and conduct processing for Norges Bank would be more than 35 million kroner, with Norges Bank incurring some costs in addition, such as for depots in Finnmark and transport between the various depots.

To sum up, cash distribution activities had become more and more commercialised. Norges Bank's role, and the distinction between central bank services and services for others, had become unclear. The regional offices performed tasks that could be performed by banks and cash handling companies, i.e. services were carried out in actual or potential competition with others. A large share of the costs incurred was covered by Norges Bank. Norges Bank had no tax costs. This raised the question of distortion of competition and there was a clear risk of conflict with the rules for state aid. In addition, a review of efficiency and resource use was needed and the question could be raised whether an institution such as Norges Bank was in a position to manage this type of activity as required. The conclusion was that changes were needed.

In addition to cash supply activities, Norges Bank was responsible for extensive operations related to the production of notes and coins. Norges Bank's Printing Works recorded 142 person-years in 1984, with tasks including printing banknotes, postage stamps and some other security documents as well as non-secure internal documents, reports and magazines. By the end of 2000 all products except banknotes and passports had been discontinued and person-years at the Printing Works stood at a total of 55–60 (35–40 in banknote production and 20 in passport production). The Royal Mint of Norway recorded 85 person-years in 1984 and this number had been reduced to 50 person-years by the end of 2000.

## 5 Changes effected by Norges Bank since year 2000

Since 2000 Norges Bank has made several changes in line with the assessments above. These changes pertain to the services Norges Bank is responsible for and the conditions for market participants' use of these services. Furthermore, the changes involve the organisation of the tasks Norges Bank is responsible for. The changes implemented can be divided into three main stages.

## 5.1 Stage one – discontinuation of commercial services

While Norges Bank was competing in the market for services, in the rest of the central bank there was increasing focus on core tasks. It was necessary to distinguish between central bank tasks ensuing from Norges Bank's statutory responsibility for issuing notes and coins and operations of a more commercial nature. However, it was considered desirable that such a distinction should not be made at the expense of economies of scope and scale in the automated processing of notes and coins.

Norges Bank has a general responsibility to ensure that central bank tasks are discharged in the most appropriate manner possible, which implies cost-effectiveness. Therefore, it was also considered important to ensure that market participants demanded a proper volume of services and that these services were provided by the best qualified operators. This presupposes that the price for these services is cost-based.

At this stage, Norges Bank had the choice between:

- a) discontinuing all commercial activities, so that the Central Bank only carried out statutory services
- b) establishing an internal profit centre in Norges Bank that took account of the distinction between central bank tasks and other services
- c) spinning off the activity into a separate company

In an operation intended to offer services to a market in competition with other agents, efficiency and market adaptation require a flexible, adaptable organisation as well as management attention. It must be assumed that the organisation which is best qualified to do a good job will be the one that has cash handling as a core activity.

Consequently, it was desirable to look for solutions that retained the coordination of activities but entailed a different organisational framework. With regard to adapting the services to the market, it would be an advantage to have private banks participating as owners. Following talks with private banks, all parties agreed to initiate a project aimed at reorganising the activity. The conclusion was to spin off the activity in a separate company. Norsk Kontantservice AS (NOKAS) was established on 1 July 2001, jointly owned by private banks and Norges Bank. The company took over employees, machinery and equipment from its owner banks. When NOKAS was founded, Norges Bank's stake was 33.5%, though this holding has since been sold.

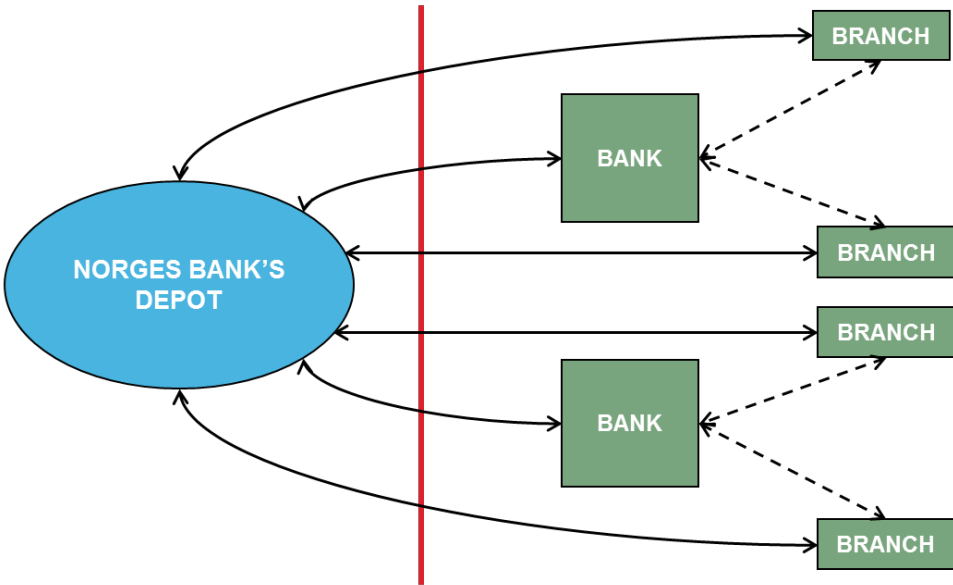
This restructuring meant that all commercial services that Norges Bank had provided for banks were discontinued. The distinction between central bank services and services for others had been established, and formed a better basis for cost-based pricing of the various services. Stage 1 of the clarification of the division of responsibilities and work between Norges Bank and banks in the area of cash distribution had thus come to an end.

### 5.2 Stage two – new rules for banks' deposits and withdrawals of cash from Norges Bank

The establishment of NOKAS was an important step towards more efficient distribution and processing of notes and coins. However, there proved to be aspects of cash distribution that could be more efficient.

For a number of years, Norges Bank had been responsible for much of the cash distribution among banks and their branches without charging them cost-based prices. Banks had geared their activities and routines accordingly, and it was doubtful whether demand for the various types of cash distribution services was of the proper scale and optimal in terms of overall efficiency. The establishment of NOKAS did not change this situation appreciably as long as the conditions for deposits and withdrawals from Norges Bank, and hence for redistribution via Norges Bank, were unchanged.

Chart 1: Previous situation – supply chain of notes and coins.



Norges Bank's aim is to act as wholesaler. In practice, however, the central bank was functioning more like a retailer, as the distribution of cash among banks and among branches of individual banks largely

went through Norges Bank. Banks also appeared to be frequent users of Norges Bank's depots for storing cash that would normally constitute banks' stocks for short-term transactions, as a large number of banks delivered cash in the evening only to withdraw the same amount the next morning. As a result, a larger amount of cash was coming into Norges Bank than the role of wholesaler would imply and there were a large number of small transactions. Chart 1 outlines the principles for the distribution of cash between Norges Bank and banks, as it functioned both before and after the establishment of NOKAS.

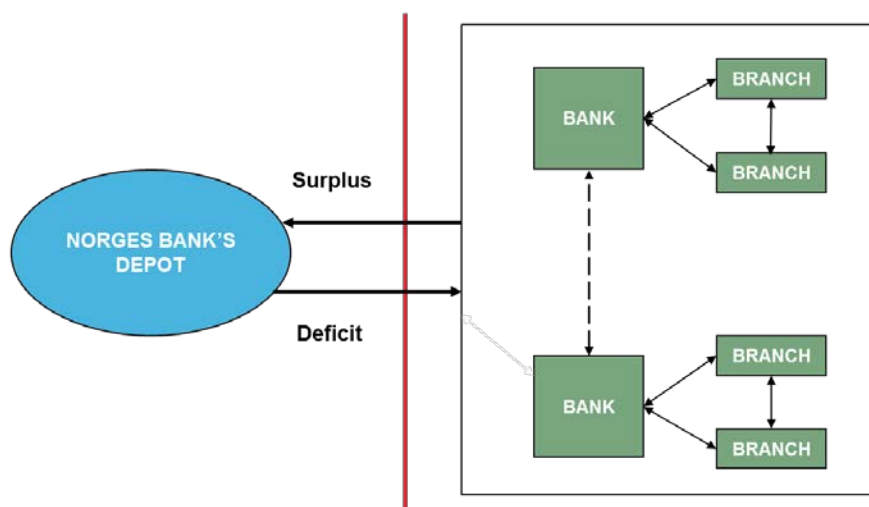
There were a number of reasons for Norges Bank assuming the role of cash distribution retailer and contributing to this type of distribution between banks and their branches:

- Norges Bank pays interest on banks' overnight deposits. By depositing their short-term excess stocks in Norges Bank, banks earned interest income while avoiding storage and security expenses. By coordinating transports with regular schedules, banks minimised the marginal expenses associated with transporting larger quantities. Banks were allowed to deliver and withdraw money around the clock, and interest was calculated on the basis of transactions made up to midnight.
- Geographically, Norges Bank's depot network had a finer mesh than can be justified by the obligation to distribute cash and by contingency considerations. This made Norges Bank very easily accessible to banks and their branches, as they were often close to a depot which could be used without major transport costs.
- Norges Bank established small standard units, which made transactions involving relatively small amounts possible.

Norges Bank was therefore paying interest and spending resources on inflows of notes and coins in a manner that was not justified by the Bank's objectives. This arrangement, where Norges Bank was covering so much of the costs of services for banks, could hardly be considered an efficient use of resources. Chart 2 illustrates the desired situation, where the banks themselves are responsible for redistribution within a geographical region of a certain size. This region is "served" by one central bank depot, and, except for replacement of worn banknotes, transactions between the depot and banks take place only when there is a real liquidity surplus or deficit in the region.



Chart 2: Desired situation. Banks themselves redistribute within the region. Transactions between Norges Bank and banks take place only when there is a real liquidity surplus or deficit in the region.



Norges Bank evaluated a number of means of achieving the desired situation. Banks had to be given greater incentives to assume responsibility themselves for the distribution of cash at the retail level. Furthermore, the means used and the changes made must not be in conflict with the desire to retain economies of scope and scale in cash processing. The conclusion in Stage 2 was to change the terms for cash deposits in and withdrawals from the central bank. Following a consultative round in the banking sector, the changes were adopted with effect from 1 January 2005, and contributed to raising the “threshold” for central bank depots (illustrated by the red line in Chart 2. The changes were as follows:

- *Requirements for sorting according to fitness.* A requirement was introduced to sort notes and coins into two categories, fit and unfit for recirculation, *before* they can be accepted as deposits in Norges Bank. Sorting according to fitness is the banks’ responsibility and the associated costs are covered by the banks. As mentioned, the obligation to supply cash means that Norges Bank must replace unfit notes with fit notes free of charge (the no-fee level). It was difficult to achieve such simultaneous exchange in practice as long as unfit notes were not outsourced on delivery to Norges Bank. By introducing a requirement for outsourcing prior to delivery, it was possible to define the no-fee level more clearly.
- *Standard units – larger minimum amount per denomination for delivery of notes and coins.* Norges Bank increased the size of standard units from 500 to 1 000 for 500-, 100- and 200-krone notes, and from 100 to 500 for 500- and 1000-krone notes.

These amounts are moderate compared to the practice in other, comparable countries. The standard unit for coins was made 150 rolls for all denominations (3 750 coins for the 20-krone, 7 500 for the rest), which was an appreciable increase on previous practice. More recent the standard units are increased to 10 000 for fit notes (5 000 for the 1000-krone) while the standard units for coins are unchanged.

- *Change in forms of packing.* Since Norges Bank required that notes be sorted into two categories of fitness before delivery, it was possible to make note processing more efficient by requiring that the units delivered be sealed. Notes that are fit for recirculation could thus be sent directly from central bank depots without any inspection other than ensuring that the seal was unbroken. Norges Bank had previously accepted deposits of coins in various forms of packing (rolls, bags, boxes etc.). The Bank regarded it as more efficient to have only one form of packing, and in consultation with the banking associations chose rolls. This is the same form of packing that is used for new coins.
- *Charges for deposit/withdrawal services.* For a number of years, banks had paid handling fees for ordinary deposits and withdrawals of unfit notes from Norges Bank. Since NOKAS was established, these handling costs have been invoiced by NOKAS, sometimes in combination with other services requested by banks. As a result the price of the actual handling services was not sufficiently visible to the banks. This made it difficult for banks to demand the economically proper volume of deposit/withdrawal services. In Stage 2, it was therefore decided that Norges Bank should invoice banks for handling costs incurred by NOKAS, the central bank's depot manager. Some other central banks impose penalties if cash is not delivered in accordance with their requirements. Norges Bank has chosen to observe developments before introducing such penalties.

The Stage 2 changes thus made the division of responsibility and work between the parties involved clearer and the costs of the various services more visible. The rules for deposits in and withdrawals from Norges Bank were also more consistent with the central bank's role as cash wholesaler.

Subsequently, Norges Bank's processing activities mainly consist of destruction of notes and coins. In practice the changes rapidly led to fewer and larger cash transactions with Norges Bank. In 2005–2008 the terms were amended further, including by increasing the size of

standard units. The purpose of these changes was to define more clearly Norges Bank's role as cash wholesaler.

### 5.3 Stage three – change in depot structure and introduction of interest compensation for cash in private depots

The number of central bank depots was higher than implied by Norges Bank's role as cash wholesaler. At the same time, Norges Bank saw banks' need for sites for interim storage and redistribution. Such sites could be created by encouraging the establishment of private depots. This implied an arrangement governed by certain rules whereby banks could store their cash stocks themselves and at the same time receive some form of remuneration as though the cash had been deposited with Norges Bank. After consultations with the banking associations, the following changes were arrived at in Stage 3:

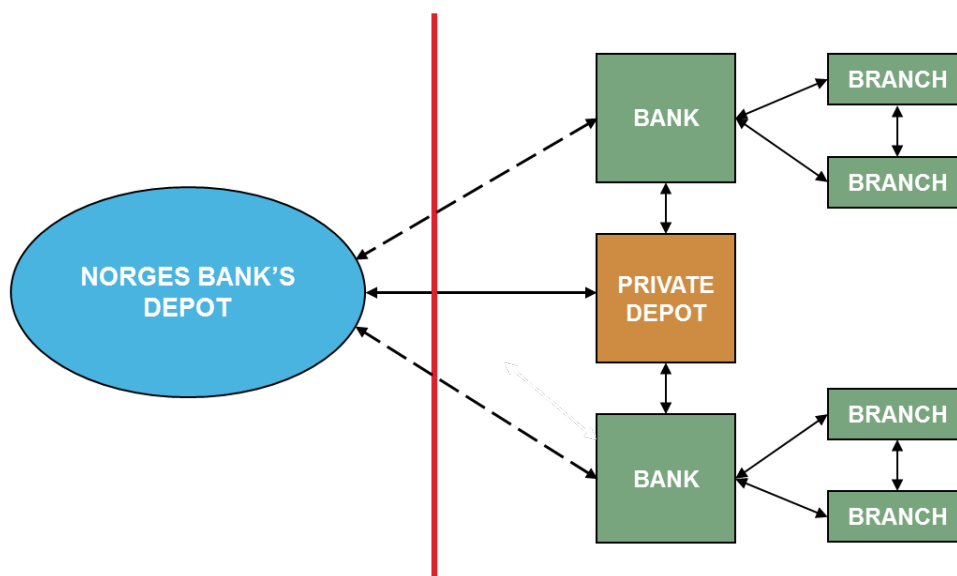
- *The number of central bank depots was reduced, and private depots were allowed.* Norges Bank reduced the number of central bank depots from eleven to five. The first stage of the downsizing was completed on 1 February 2005, when the central bank's depots in Finnmark (Vardø and Hammerfest) were closed. Prior to this, Norges Bank and the banks had worked together to find satisfactory solutions for the distribution of cash in Finnmark County. The other four central bank depots (Bodø, Kristiansand, Larvik and Lillehammer) were closed later in 2005.
- *Introduction of compensatory payment for the loss of interest by Norges Bank to banks for stocks kept in private cash depots.* The decision to reduce the number of central bank depots was accompanied by a decision to pay interest compensation according to specific rules for private cash depots. The rules prepare for private depots to be established if banks find it more appropriate to carry out distribution and interim storage at such depots rather than going by way of the central bank depots. Under the compensatory payment arrangement, banks will be paid the same by Norges Bank if the cash is stored in a private depot instead of deposited at a central bank depot. The change contributes to ensuring that banks' decisions to establish such depots, and the choice of management solutions, are based as far as possible on real costs, and not on where the cash must be stored in order to earn interest.

The cash stocks in the private depots are the banks' property. Banks bear the costs associated with the depots and determine the scope and location of depot services. Banks can operate the

depots themselves or use external service providers. Although Norges Bank has not set an upper limit for the number of private depots qualifying for interest compensation, such a limit will have to be considered if there is greater than expected interest in this solution. By end-2010 a total of 14 private cash depots have been established across Norway. These depots are operated by NOKAS and Loomis Norge AS.

- *Changes in business hours at central bank depots – value dating rules.* At private depots banks can decide on their own business hours and terms for deposits and withdrawals, on the basis of the costs of the various solutions. Private depots with interest compensation may also be established in the same locations as central bank depots. The business hours and value dating of central bank depots will then be of less importance to the banks' behaviour, and the period of the day during which deposits/withdrawals must be made has been changed to coincide with ordinary business hours.

*Chart 3: From 2005 on: Banks themselves redistribute cash within the region. In practice, the private depot carries out transactions between Norges Bank and banks on behalf of the banks. Individual banks can still deposit and withdraw cash direct from Norges Bank.*



After Stage 3 of the changes was implemented in the course of 2005, the depot structure has been as shown in Chart 3, with a number of private cash depots established by the banks and five central bank depots (Bergen, Oslo, Stavanger, Tromsø and Trondheim).

## 6 Changes in the organisation of the tasks for which Norges Bank is responsible

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CHANGES IN NORGE'S  
BANK'S ROLE AND  
ACTIVITIES IN CASH SUPPLY  
AND DISTRIBUTION

### 6.1 Operation of central bank depots etc.

NOKAS provides business services (quality sorting, packing etc.) for banks in competition with other market operators (Loomis, banks etc.). Norges Bank has chosen to outsource the destruction of notes to NOKAS. As far as we are aware, no other central bank has outsourced this task to the same extent. A condition for this solution was that Norges Bank could be assured of the necessary control during the destruction process. The solution was that the Bank, in collaboration with the machinery suppliers, developed a surveillance system (see Natvig and Veggum 2002). Economies of scope and scale are thus also achieved in note processing, as control and sorting for banks and destruction of notes for Norges Bank are carried out in one and the same process. In addition, Norges Bank has chosen to use NOKAS as its depot manager. Thus, NOKAS operates the actual depot vaults under contract to Norges Bank and manages the stocks kept there on the Bank's behalf. Banks therefore deal with NOKAS employees when they come to a central bank depot to deposit or withdraw cash. For practical reasons the destruction in the Oslo area and the operation of the Oslo central bank depot was insourced in 2013, when NOKAS moved to other premises. For the rest there are no changes.

### 6.2 Production of circulation and commemorative coins etc.

Up until 2001, Mint of Norway (formerly the Royal Norwegian Mint) was part of Norges Bank. That year the mint was spun off into a separate limited company, and in June 2003, Norges Bank sold the shares in the company to Samlerhuset AS and Mint of Finland. The sale gave the company owners that could provide it with both expertise and other areas of activity. At the same time Norges Bank signed a long-term delivery agreement with the company to purchase circulation and commemorative coins.

The agreement between Norges Bank and Mint of Norway expired on 31 December 2009. To determine who would produce Norwegian coins beginning in 2010, Norges Bank carried out a tendering process in 2007/2008 in accordance with the Public Procurement Act. Following the tender notice and prequalification of suppliers who expressed an interest, a total of six mints from different countries submitted tenders. The tenders were evaluated on the basis of price and functional requirements, which were weighted 80 per cent and 20 per cent,

respectively. Based on these criteria, the tender from Mint of Norway was judged to be the best. Thus, in October 2008 a framework agreement was signed with Mint of Norway for deliveries for a further four years beginning in 2010.

Following a new competitive tender, Norges Bank signed a framework agreement with Mint of Norway in August 2014 on the delivery of Norwegian coins for an additional four years beginning in 2015. In accordance with the Public Procurements Act, the competition was announced internationally. Three mints submitted tenders.

### 6.3 Production of banknotes

In 2003 Norges Bank decided to wind up its printing works from summer 2007. In 2006 a process was implemented to determine who would produce Norwegian banknotes after the Bank's printing works were closed down.

As the security elements of banknotes and banknote production need to be kept secret, the requirements of the Public Procurement Act do not apply. An open tendering process was therefore out of the question. Even so, contractual partners were chosen after an extensive process that satisfied the statutory requirements for competitive tendering, and Norges Bank received tenders from a number of recognized banknote printers. The selection was based on defined technical and functional requirements and on tendered price.

In December 2006 agreements were signed with De La Rue International Limited from the UK and Francois-Charles Oberthur Fiduciaire from France. Both are large and reputable printers, which produce banknotes for numerous other countries. The agreements were in force for the period 2007–2012, with initial deliveries in 2008. After a new international tender in 2012, Giesecke & Devrient from Germany and Oberthur Fiduciaire were awarded a new 4+3 years contracts.

The dual-supplier solution was chosen in order to ensure security of supply in case one supplier experienced problems, but also in order to have contacts with various production environments. Norges Bank continues to decide on the quality, security features and appearance of Norwegian banknotes. Important expertise regarding the design and production of banknotes continues to exist at Norges Bank.

### 6.4 Distribution and sale of commemorative coins

Unlike circulation coins, commemorative coins in silver/gold are not issued through banks. Different solutions have been employed for

various coin projects, with distribution largely through sales via coin dealers. The Bank wished to establish a more permanent sales channel for commemorative coin issues, and following a competitive tenders, Granada AS (in Halden, Norway), provides services related to distribution and sale of commemorative coins. The current procedure for all issues of such coins, i.e. sales from Norges Bank, is that persons interested in buying coins order on the Internet or by phone or mail, with the coins dispatched by mail.

## 7 Consequences of the changes

### 7.1 Reduced role and activities for Norges Bank

Overall the changes entail a redefinition of Norges Bank's responsibilities and a reduction of the Bank's role in cash operations. The division of responsibilities in the area of cash supply and distribution has been clarified and altered and Norges Bank now has a more distinct wholesaler role. Besides its statutory mandates, Norges Bank is currently responsible only for functions where for various reasons there appear to be no satisfactory market solutions. In addition, Norges Bank has made substantial changes to the way it organizes and attends its responsibility. There has been a major shift from performing services in-house to primarily outsourcing to professional suppliers which provide such services as their core business.

The central distribution inventories in Oslo and transport between central bank depots is not subject of outsourcing. The Bank also takes care of security installations and controlling movement in and out of Norges Bank's vaults and coin storage rooms at central bank depots. Furthermore, Norges Bank processes banknotes that the machines at NOKAS reject (do not recognize as genuine) for destruction.

In the aggregate this has resulted in a sharp reduction in Norges Bank's cash operations. In 2000 the total number of full-time equivalents in this area was estimated at around 530, with 85–90 in production operations and just over 440 in supply operations (Gjedrem, 2000). Besides security personnel, 18 persons currently work at Norges Bank in carrying out the central bank's responsibilities in cash operations.

### 7.2 Better conditions for providing efficient solutions in cash supply and distribution

Banks and other participants have responsibilities and high costs relating to storing, processing and transporting cash. A consequence of the changes in Norges Bank's role is that these parties now have even greater responsibilities and higher costs than previously, because they

are responsible for functions previously performed by Norges Bank and because they have to pay handling fees for cash deposits and withdrawals with Norges Bank. This is assumed to have the following beneficial effects:

- Production can be efficiently tailored to demand, since parties in need of various services are aware of the costs of producing them and are able to evaluate these services in cost/benefit terms. One result is a proper volume of demand for various services, which helps ensure overall efficiency when the public chooses between cash and non-cash payment instruments.
- The changes help ensure that the choices are based on real costs. The uncertainty related to whether services from Norges Bank had been subsidised has been removed, and the interest compensation arrangement for private depots ensures that participants' desire to earn interest on cash deposits with Norges Bank does not compromise the efficiency of market mechanisms.
- When participants are accountable for costs, they have an incentive to find the most cost-effective solutions. Greater responsibility for redistribution and interim storage also provides better incentives for finding efficient solutions for coordinating with other parts of cash distribution, for example, transport.

Consequently, we assume that the changes have promoted efficiency in both cash supply and distribution and the payment system as a whole. Circulation patterns have changed, with money circulating closer to users. The added responsibilities placed on banks and the interest compensation arrangement for private depots have meant that banks now have more redistribution and interim storage sites than when they used Norges Bank depots exclusively. There is a reduced volume of cash transport motivated by a desire to earn interest or take advantage of subsidised services. The banks have chosen these solutions, even though the use of Norges Bank's depots is still unrestricted. We view this as a clear indication of greater efficiency. And if banks pass on to customers the costs related to various products, users will base their choices of means of payment more on the real costs connected with the different alternatives.

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