

Destruction of banknotes outside the central bank

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Developments in Norges Bank's cash handling services for banks in the 1980s and 1990s led to a need for a clearer distinction between central bank responsibilities and commercial services for banks. As a result, Norsk Kontantservice AS (NOKAS) was established in 2001. This raised the important question of whether the destruction of banknotes could be delegated to an external company, which Norges Bank decided to do. To our knowledge, no other central bank has outsourced this task to the same degree. This article presents the considerations taken into account, the system established to make adequate provision for security, and experience so far.

Background

Integrated automated processing and destruction

Norges Bank has had automated counting and authentication of banknotes for many years, with the automatic sorting out and removal of notes of such poor quality that they have to be destroyed. Since about 1980, the actual destruction of damaged notes has also been an integral part of the automated processing. In the 1980s, banks extensively developed their network of ATMs partly to reduce cash handling costs. Notes of a high quality were required for ATMs, which led to banks' increasingly demanding high quality notes from Norges Bank. The sorting of notes according to quality and, in time, other services for banks¹⁾, took place in connection with Norges Bank's automated processing of notes, and generated economies of scale and scope, as several services were performed in one and the same operation.

Changes in the organisation of the supply of notes and coins

The scale of Norges Bank's services for banks expanded, and a growing proportion of Norges Bank's processing activities consisted of commercial services for banks. The distinction between central bank services and services for others gradually became less clear, and as a result there was also a lack of clarity regarding the pricing of services. This raised a number of questions. It was difficult to assess whether the resources spent on the various services could be justified. On the one hand, there was the question of whether central bank's responsibilities were being discharged in the most appropriate and most cost-effective way possible. On the other hand, there was the question of whether other services for banks were in sufficient demand and being performed by those operators able to provide them with a minimum of resources. Moreover, services for banks were in principle provided in competition with other operators, implying a risk that Norges Bank might find itself in a questionable position with respect to the legislation on competition.

The conclusion was that pricing based on actual costs would have to be introduced for the various services,

and that services for banks would hereafter have to be based on commercial principles. This was contingent on the establishment of more distinct boundaries between pure central bank tasks and services for others.

Norges Bank is required pursuant to the Norges Bank Act to issue banknotes and coins and to promote an efficient payment system. The responsibility of a banknote issuer implies the following obligations:

- Obligation to supply notes and coins. This implies issuing banknotes and coins to the required extent and ensuring that the notes and coins that are issued are readily available to the public.
- Obligation to replace notes and coins. This relates to the quality of notes and coins in circulation, and implies an obligation to accept worn and damaged notes and coins for destruction and to replace them with notes and coins of an acceptable quality.
- Obligation to redeem notes and coins, which applies for 10 years after notes and coins have been withdrawn from circulation.

The note and coin processing services required by Norges Bank, in its capacity as central bank, are associated with the obligation to replace notes and coins. The services consist of processing the notes that are to be destroyed, i.e. verifying that the notes are genuine and of a quality that requires that they be destroyed, and the destruction itself. The sorting out and removal of notes that are to be destroyed and the processing of notes that are to be returned to circulation are not defined as central bank tasks. These are therefore commercial services for commercial and savings banks.

During the past two years, major changes have consequently been made in the organisation of the supply of notes and coins in Norway. First and foremost, the processing of notes and coins, which previously took place in Norges Bank, has been transferred to NOKAS, from which Norges Bank purchases central bank services, including the destruction of notes, and the other banks purchase other services on a commercial basis. Eklund and Veggum (2002) discuss the changes and the reasons for them.

¹⁾ Counting and checking of night safe contents, handling of unsorted coins, packing of ATM cassettes, receipt and supply of notes in foreign currency, receipt and distribution of notes and coins directly from and to bank branches.

Cost-effective destruction of banknotes

The number of notes destroyed may vary substantially from year to year, and may increase sharply when there are changes in banknote series. In 2001, some 85 million notes were destroyed, of which about 75 million in connection with the automated processing of notes delivered by banks. The others consisted of notes from old series and notes that were rejected during the automated processing. These notes are destroyed in Norges Bank after close inspection. It is estimated that during a year without replacement or upgrading of banknote series some 60 million notes will be destroyed, of which about 58 million in connection with automated processing. By way of comparison, there are a total of about 100 million notes in circulation in Norway.

The overall efficiency of processing activities depends largely on the exploitation of economies of scope and scale. There are considerable advantages to combining

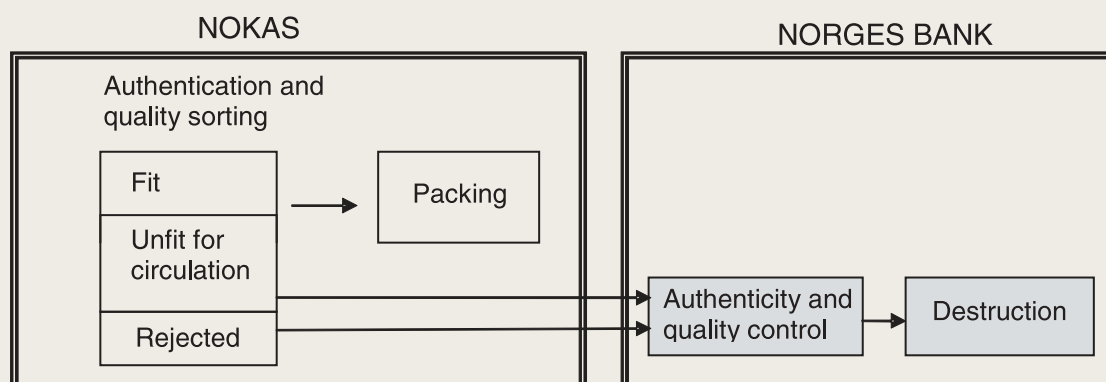
destruction of notes with other processing activities. Therefore, when NOKAS was established future note destruction was a key issue. There were two alternatives:

- Norges Bank carries out the destruction itself, after NOKAS has sorted the notes as a service for banks.
- NOKAS carries out the destruction as a service for Norges Bank.

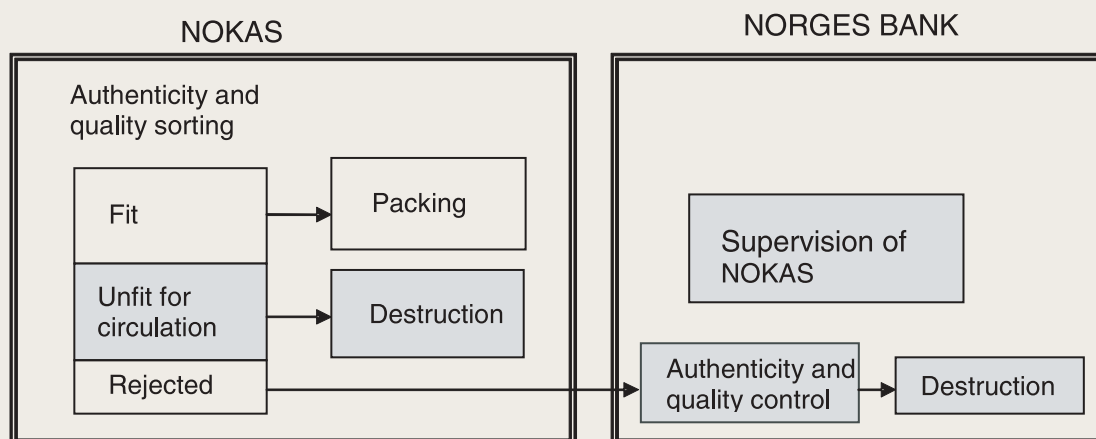
The two options are shown in Chart 1. Central bank tasks are shown by means of a grey background.

Calculations indicated that with prices based on the costs of the various services, it would be more profitable from a financial point of view to allow NOKAS to carry out the destruction, i.e. Alternative 2. This reflects the fact that economies of scale and scope are achieved when central bank services and services for others are carried out as an integrated process. In Alternative 1,

Alt. 1: Destruction in Norges Bank



Alt. 2: Destruction in NOKAS



some of the notes are processed more than once, because if destruction takes place in Norges Bank, the notes have to be checked again for authenticity and correct quality.

Before Alternative 2 could be chosen, it was necessary to determine the risk inherent in delegating destruction to an external company, and the measures necessary for dealing with this risk.

So far, central banks have been highly restrictive about delegating destruction to others. Only a couple of countries have done so previously, and then with a considerable degree of direct participation by the central bank. Other central banks that have outsourced cash handling have chosen so far to carry out destruction themselves – in other words they have opted for Alternative 1.

Prerequisites for delegating destruction to an external company

Destruction of notes places very special demands on security and control, partly because it is not physically possible to check at a later time how many notes have been destroyed. Before allowing others to destroy banknotes, Norges Bank must be assured of the following:

- only genuine banknotes are destroyed
- none of the notes destroyed fulfil the requirements for further use
- notes reported to have been destroyed have really been destroyed.

It will be very difficult to show at a later time that reported destruction tallies with actual destruction. We therefore have to rely on automated functions and on the reports received by Norges Bank reflecting what has actually taken place.

After conducting a study and evaluating the risk associated with external destruction of banknotes, Norges Bank drew up a list of prerequisites and requirements that would have to be fulfilled. One key prerequisite is that authentication and destruction may only be carried out with equipment that has been approved by Norges Bank. This means that only notes that have satisfactorily undergone an automated authentication process but found to be of too poor a quality to be put back into circulation are destroyed. These notes are sent directly into the destruction unit after inspection, and it is not possible for operators to interfere in the process as long as the machines are in operation.

Another important prerequisite is that Norges Bank sets and checks the settings of the destruction machinery, and that it is not possible for anyone other than Norges Bank to change the programming of the destruction equipment. It was therefore necessary to strengthen the protection of the software, and the machines have been set up in such a way that any attempt at manipulation will be registered and discovered.

Further prerequisites are that Norges Bank can monitor the machines and the destruction, and that in the event of interrupted operations it is possible to trace exactly what has happened. A new monitoring system therefore had to be developed for the machines. This is described in more detail below.

Notes that are rejected during the automated processing, i.e. notes that the machines do not recognise as genuine, or notes that for various reasons the machines are unable to process, must be returned to Norges Bank for authentication and destruction.

If these requirements are satisfactorily met, outsourcing will not entail increased risk, and it will not be possible to destroy counterfeit notes.

The monitoring system

The general principle of the monitoring system is that the destruction machine reports the quantity destroyed directly to Norges Bank without machine operators having the opportunity to change the data. Norges Bank checks these data against other ongoing reporting from NOKAS. All destruction machines are monitored continuously, so that we can ascertain what happens in connection with machine stops and other abnormal operating situations. In this way we can verify at a later time what has happened and how many notes have really been destroyed.

Any discrepancies between automatically and manually reported figures, or irregularities in connection with destruction, are followed up by a separate control group in Norges Bank.

Experience so far

The installation of the system started in February 2002 and was completed at the end of June 2002. Experience after a little more than four months of operations indicates that the system appears to be functioning according to expectations. Technically, the reporting of data and alerts in connection with interruptions is functioning well, and so far there have been no major problems associated with follow-up. Our conclusion so far is therefore that security has been satisfactorily provided in connection with the destruction of banknotes. This solution will be maintained as long as economies of scope and scale are exploited in such a way that it is financially more favourable for Norges Bank to purchase the service than to carry out the destruction itself.

References:

Eklund, Trond and Leif Veggum (2002); "Change in the organisation of the supply of notes and coins". *Economic Bulletin* no. 2/2002, pp. 58-62.