
Introduction of the 1997 Banknote Series

Ulrik H. Bie, Secretariat

DEVELOPMENT IN TOTAL CIRCULATION OF BANKNOTES

At the end of January 2000, circulating banknotes totalled kr. 37.4 billion, of which the 1,000-krone note accounted for more than half, i.e. kr. 20.8 billion. The 500-krone note accounted for 21 per cent, while the 100-krone note accounted for 15 per cent. The shares of the 200-krone and 50-krone notes were 6 and 2 per cent respectively. Total circulating banknotes are thus most affected by the trend for the largest notes (1,000- and 500-krone notes). The rate of growth in the value of circulating banknotes has been 5-6 per cent in recent years.¹

The 100-krone note is currently the key note in the new series and is thus the banknote most frequently encountered in circulation. In quantitative terms the 100-krone note accounts for 45 per cent of the total number of circulating banknotes.

Circulation of the individual banknotes has shown highly varying development in recent years, cf. Chart 1. In general, circulation of the 100-krone note has decreased, while circulation of the 200- and 500-krone notes has increased. Since it is still in an introductory phase the strongest increase was naturally shown by the 200-krone note. The growth in the 200- and 500-krone notes' share of total banknotes in circulation can be attributed to such factors as their increased use in ATMs. Circulation of 1,000-krone notes has been almost constant.

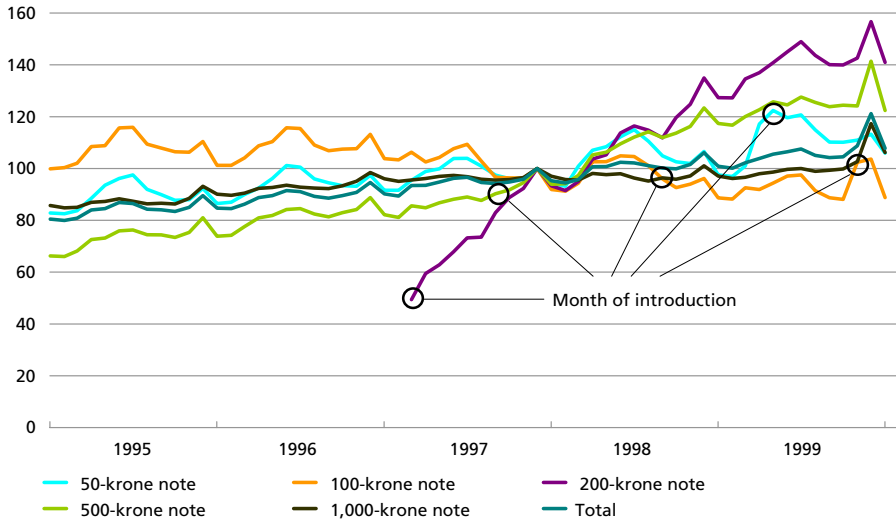
The course taken in individual years shows that use of the 1,000-krone note is generally homogenous, but greatest in December. The 500-krone note shows the same pattern. Disregarding the Christmas trade, when all banknote denominations are in frequent use, the stable use during the year indicates that the largest banknotes are kept for steady use during the year. The 500- and 1,000-krone notes thus to a certain extent serve as savings objects. The small banknote denominations show considerable fluctuation in the course of the year, peaking in the summer months. The fluctuations in the number of transactions are thus to a high degree absorbed by the 50- and 100-krone notes: the small de-

¹ In 1999 the rate of growth was extraordinarily high due to the preparations for the millennium change.

DEVELOPMENT IN CIRCULATION OF INDIVIDUAL BANKNOTES (VALUE)

Chart 1

Index, end-December 1997 = 100



Source: Danmarks Nationalbank.

nominations are used for the small-value transactions, which are normally numerous during the summer. This applies to consumption by tourists and residents alike.

The varying use of the different banknotes is also reflected in their varying lifetimes. The lifetime of the 500- and 1,000-krone notes is thus longer than of the 50- and 100-krone notes.¹

The replacement of both the 50- and 100-krone notes has led to a considerable increase in circulation, which was not observed for the 500- and 100-krone notes. Again, this is related to value. When a new banknote is introduced, people tend to be curious to see it for themselves. It is cheaper to satisfy this curiosity to experience small rather than large banknote denominations. Furthermore, it is less expensive for the banks to stock large volumes of 50-krone notes than of 1,000-krone notes. The circulation of the 50-krone note has already fallen to a more normal level, reflecting the aforementioned effects. This also applies to the 100-krone note.

INTRODUCTION OF THE NEW BANKNOTE SERIES

During the period 1997-99 Danmarks Nationalbank replaced the entire series of Danish banknotes. The replacement of the previous Series 1972

¹ For further details of the lifetime of banknotes see Erik Haller Pedersen and Tom Wagener, Circulation of Notes and Coins in Denmark, Danmarks Nationalbank, *Monetary Review*, November 1996.

TIMETABLE FOR THE INTRODUCTION OF SERIES 1997		Box
50-krone note		7 May 1999
100-krone note		22 November 1999
200-krone note		10 March 1997
500-krone note		12 September 1997
1,000-krone note		18 September 1998

with the new Series 1997 is related to a need for banknotes which are better protected against counterfeiting. The 200-krone note was the first in the new series to be introduced, while the 100-krone note, the key banknote in the series, was the last. The timetable for the introduction is shown in the Box.

The new 200-krone note

The 200-krone note was the first banknote of this denomination to be circulated in Denmark. The background was the need for a banknote with greater purchasing power than the 100-krone note.

At the end of January 2000 there were 11.4 million 200-krone notes in circulation, representing a value of almost kr. 2.3 billion. This constitutes an increase by 11 per cent from January 1999.

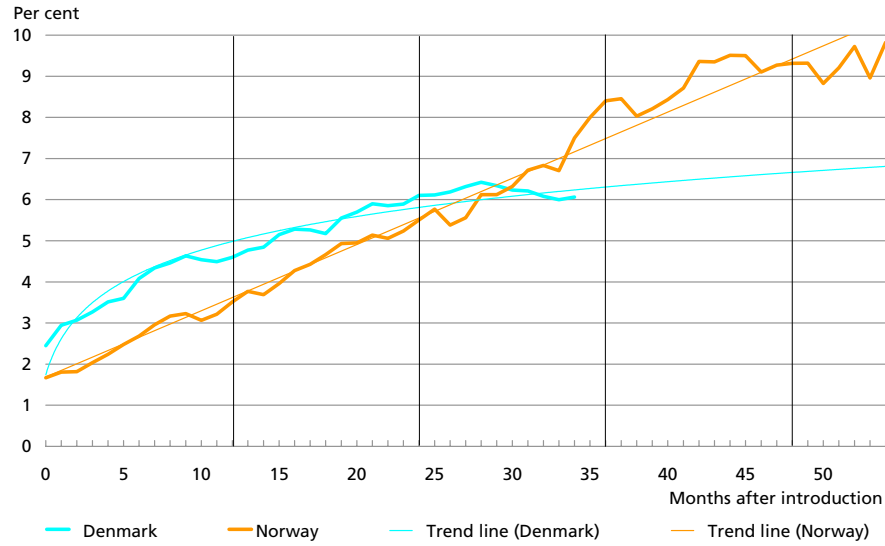
Norway introduced a 200-krone note in 1994. Since Denmark and Norway have identical note series, it may be relevant to compare the development in the use of the respective 200-krone notes. This will give an impression of the pace of the introduction and the potential of the 200-krone note in relation to total note circulation.

In the first four years after its introduction use of the 200-krone note in Norway showed an almost constant increase, cf. Chart 2. The development in this period is best described by a linear function. In Denmark growth in the 200-krone note's share of total banknotes in circulation was relatively strongest around the time of its introduction. The growth has since declined to the current very low level. The development in use of the 200-krone note so far is best described by a logarithmic function. The difference in the time taken for notes to become accepted may be related to such factors as differences in cash-supply systems.

The trend for the Danish 200-krone note appears to converge towards a limit which expresses the 200-krone note's share of total banknotes in circulation in the long term. Presently, the natural level for the 200-krone note appears to be 6-7 per cent, although a shift in the level cannot be excluded. Such shifts will be attributable to changes in consumer behaviour. In Norway, the 200-krone note appears to have found

THE 200-KRONE BANKNOTE'S SHARE OF TOTAL CIRCULATION (VALUE)

Chart 2



Note: The last five observations for Norway are preliminary figures.
 Source: Norges Bank and Danmarks Nationalbank.

its natural level at approximately 10 per cent of total circulating banknotes. During the third year after the introduction (in Denmark 1999 and in Norway 1997) the 200-krone note's share of total circulating banknotes became higher in Norway than in Denmark. The continued high level of growth in Norway can be attributed to such factors as Norges Bank's active measures to stimulate the use of 200- and 500-krone notes in ATMs.

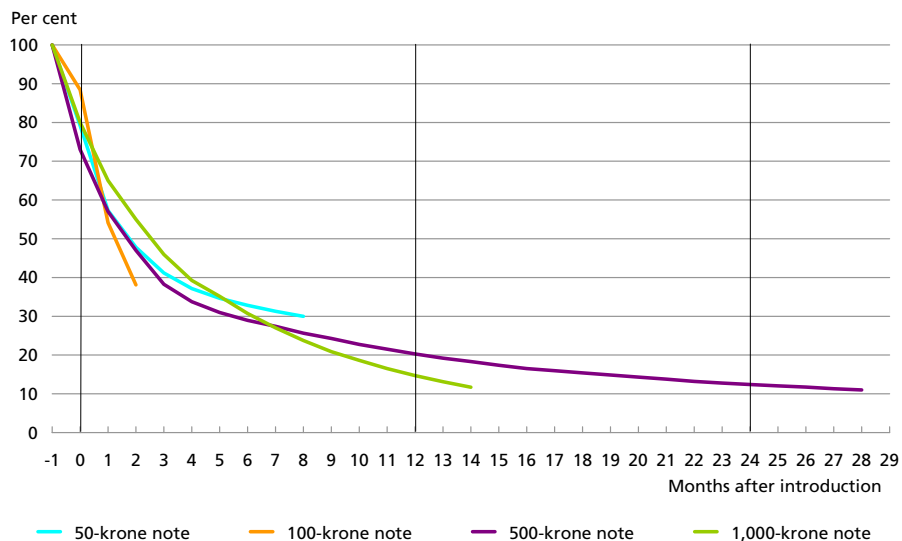
The use of 100-krone notes must be expected to decrease upon the introduction of a 200-krone note. In Norway the value of circulating 200-krone notes exceeded the value of circulating 100-krone notes in 1998. At the end of January 2000 the value in Denmark was still only 42 per cent of the value of circulating 100-krone notes. The 200-krone note has thus not replaced the 100-krone note to the same degree in Denmark as in Norway.

Replacement of the old banknote series

The banknotes in the old Series 1972 are withdrawn from circulation as they are received by the Nationalbank. Chart 3 shows the proportion of banknotes from the old series which are still in circulation. The circulating volume is compared to the circulating volume at the end of the month before the new banknote was introduced. Most banknotes are withdrawn from circulation at the beginning of the replacement phase –

REMAINING PROPORTION OF SERIES 1972 IN CIRCULATION

Chart 3



Note: The compilation includes banknotes in cash depots.

No data is available for the first three months for the 500- and 1,000-krone notes. The figures are therefore approximations.

the volume of withdrawn banknotes decreases over time after the introduction of the new banknote. The development in Series 1972 can thus best be described by an exponentially decreasing function with a constant percentage rate of decrease.

The rapid replacement is due primarily to a well-functioning cash-supply system. With regard to the three banknotes which were the first to be replaced, more than two thirds of the circulating volume of Series 1972 notes were withdrawn from circulation within six months of the introduction of the new banknotes. The rate of replacement of the individual denominations varies slightly. The 1,000-krone note tends to be replaced sooner than the 500-krone note, while for the 50-krone note there is no clear pattern. At the close of January 2000 there are signs that the 100-krone note will be withdrawn more quickly than the other banknotes. At the end of January 2000 62 per cent of the 100-krone notes in Series 1972 had been withdrawn.

The remaining share of circulating Series 1972 notes shows convergence towards a threshold value. This threshold is the proportion of old banknotes which are not returned to the Nationalbank. The threshold value will be zero if all banknotes are returned. However, a certain number of banknotes can be expected not to be returned. These are either still being used, are stored in collections, have disappeared or

have been destroyed. A certain number of banknotes will also disappear abroad in connection with foreign tourism in Denmark.

Approximately 4 per cent of the old banknotes from before Series 1972 still remain to be returned to the Nationalbank. Although old banknotes are still received, this proportion can be regarded as the threshold for the old banknote series. Approximately 90 per cent of the 500-krone notes in Series 1972 have been withdrawn, cf. Chart 3. This means that there were still Series 1972 500-krone notes for a value of kr. 612 million in circulation at the end of January 2000.

The final proportion of old banknotes which have not been withdrawn cannot be compiled until the banknotes are no longer redeemed at the Nationalbank. Banknotes have only been nullified in this way once since the introduction of the krone system in 1875. This was in connection with the note substitution in July 1945. All banknotes issued since 23 July 1945 are still redeemable at the Nationalbank.