
Counterfeit Banknotes

Maria Carlsen and Johanne Dinesen Riishøj, Secretariat

INTRODUCTION

Since spring 2004 quite a few genuine-looking counterfeit 100-krone banknotes have been found. Even the latest security features have been copied on these banknotes. Whereas most counterfeit banknotes are made using printers, these counterfeit 100-krone banknotes have been made using a printing press. For the first time in approximately 15 years, press-printed counterfeit Danish banknotes have been detected. Most of the counterfeit 100-krone banknotes have been found in the Copenhagen area.

The incidence of counterfeiting is still limited in Denmark, however. In 2003 1,239 counterfeit banknotes were found in circulation. The direct financial loss totalled kr. 456,500, equivalent to kr. 0.08 per capita in Denmark.

DETERMINANTS OF THE INCIDENCE OF COUNTERFEITING

Counterfeit banknotes found in circulation entail a financial loss for the enterprises or individuals who inadvertently receive them, and a large number of counterfeit banknotes in circulation can undermine the confidence in money. A stable monetary system is essential to a well-functioning society. Central banks therefore seek to make the production of genuine-looking copies difficult by maintaining a high quality of banknotes in circulation and by enhancing the security level of the banknotes.

Knowledge of the look and security features of the banknotes is another determinant of the incidence of counterfeiting. The more people who know how to distinguish between a genuine banknote and a counterfeit one, the harder it is to use counterfeit banknotes. A key element of Danmarks Nationalbank's fight against counterfeiting is thus to make the public familiar with the look and security features of the banknotes.¹

¹ Information is provided e.g. at Danmarks Nationalbank's website, www.nationalbanken.dk – Notes and coins, in leaflets distributed to all households and free postcards available at cafés, in cinemas, etc.

Counterfeiters' reproduction technology has become cheaper and more readily available in recent years. 10-15 years ago, the production of counterfeit banknotes required specialised equipment that was expensive and difficult to obtain. Today, ordinary scanners and colour printers make it possible to produce, at low cost, counterfeit banknotes that are quite genuine-looking at first sight. A colour printer is often included in the purchase of a computer. In 2003 79 per cent of all Danish households owned a computer.¹

The incidence of counterfeiting is not only determined by the quality of banknotes. Police efforts to investigate and solve cases involving counterfeit banknotes also influence the volume of production and distribution of counterfeit banknotes. In addition, the incidence of counterfeiting depends on the criminal environment in the relevant country. If the criminal network is extensive, it is easier to distribute counterfeit banknotes.

Counterfeiting, attempted counterfeiting or aiding and abetting counterfeiters are offences liable for a maximum penalty of 12 years, which is one of the most stringent penalties under the Danish Penal Code. Even counterfeiting a few banknotes will normally entail an unsuspended prison sentence.

COUNTERFEIT DANISH BANKNOTES

As mentioned above, quite a few relatively genuine-looking counterfeit 100-krone banknotes have been found since spring 2004. Whereas counterfeit Danish banknotes are typically produced using a printer, these counterfeit 100-krone banknotes have been press-printed, and the new security features, the hologram and fluorescent colours, have also been copied. The counterfeit 100-krone banknotes look genuine at first sight, but if tilted it is obvious that the window thread does not change colour. If a counterfeit 100-krone banknote is held to the light, it appears that the hidden security thread is missing, the window thread does not join up in the banknote's full height, and the watermark is only faintly visible on the reverse side. In addition, there is no "movement" in the hologram of the counterfeit banknotes, and some of the motifs in the hologram, e.g. the notes, are missing. The counterfeit banknotes have been printed in weaker colours than the genuine banknotes. The weaker print also makes the portrait of Carl Nielsen appear differently. A banknote with weaker colours should be examined closely. Some security features have been reproduced well on the counterfeit 100-krone

¹ A detailed description of counterfeiting technology and the efforts to prevent counterfeiting can be found in Ulrik Bie and Sebastian Gabel, Counterfeit Banknotes, Danmarks Nationalbank, *Monetary Review*, 1st Quarter 2002.



...and counterfeit



When a Danish banknote is held to the light, a security thread, which is otherwise hidden, must become visible, and the window thread must join up, see the upper illustration. These are two of several methods to check whether a banknote is genuine, and they have been used to identify e.g. the counterfeit 100-kroner banknotes found since spring 2004.

banknotes while others have been poorly reproduced. The case illustrates the importance of having several security features to focus on.

Counterfeit Danish banknotes in circulation

The number of counterfeit Danish banknotes found in circulation has risen significantly in the last ten years. While the number of counterfeit banknotes in circulation was approximately 100 per year in the mid-1990s,

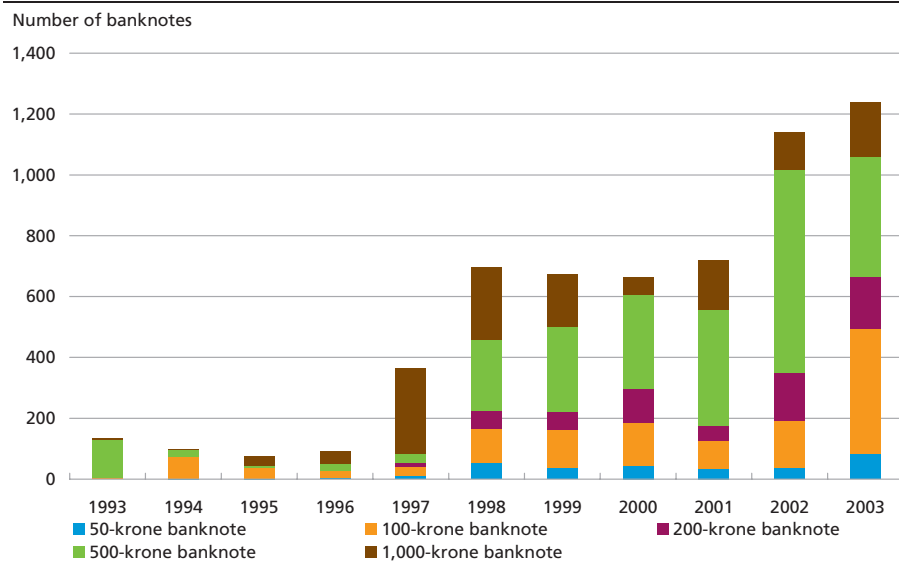
recent years have seen more than 1,000 counterfeit banknotes per year. In 2003 1,239 counterfeit Danish banknotes were found in circulation. The corresponding number for the first half of 2004 is 557 banknotes. Most counterfeit banknotes are detected in the retail trade or in banks, but a few are found and withdrawn from circulation when they arrive at Denmark's Nationalbank where all banknotes end up eventually.

The lifetime of most counterfeit banknotes in circulation is considerably shorter than that of genuine banknotes. Since counterfeit banknotes do not circulate to the same extent as genuine banknotes, the ratio of counterfeit banknotes is not constant. Thus, it is not possible to assess accurately the risk of receiving a counterfeit banknote. An overrated, but often used estimate of the risk is achieved by relating the number of counterfeit banknotes per year to the number of banknotes in circulation. Such an estimate for Denmark shows that in 2003 9 counterfeit banknotes were found for each million genuine banknotes. This estimate often forms the basis of cross-country comparisons of the level of counterfeit banknotes.

The 100- and 500-krone banknotes are the banknotes in circulation showing the highest incidence of counterfeiting, cf. Chart 1. A counterfeiter's choice of banknote denomination may be motivated by considerations of risk versus gain. For many years, the 500-krone banknote has been the most copied Danish banknote because of its frequent use and relatively high purchasing power. 2003 also saw quite a few counterfeit

COUNTERFEIT DANISH BANKNOTES FOUND IN CIRCULATION

Chart 1



Source: The police.

100-krone banknotes. The 100-krone banknote is probably an attractive counterfeiting target as it is widely used and is rarely examined closely on receipt.

The individuals and enterprises that inadvertently receive counterfeit money suffer a direct financial loss, which in 2003 totalled kr. 456,500, equivalent to kr. 0.08 per capita in Denmark.

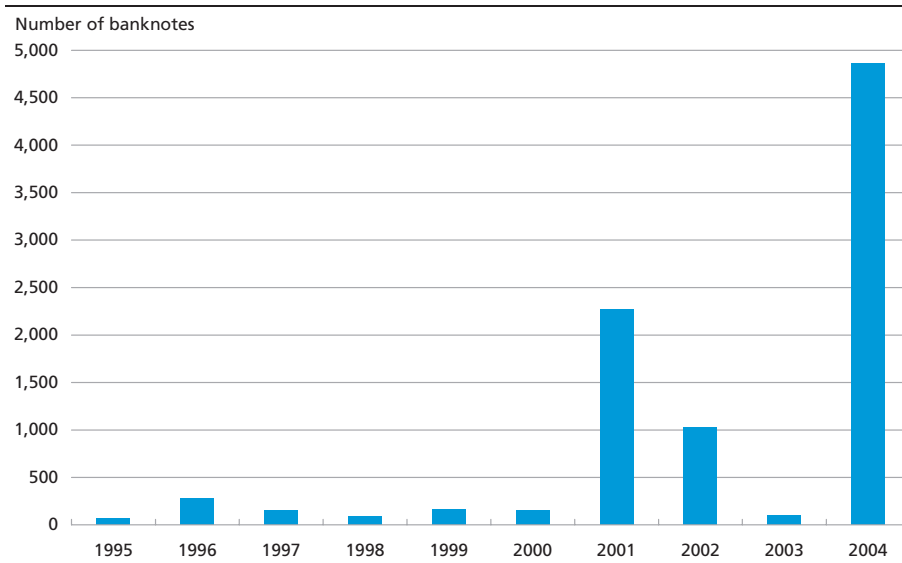
Confiscated counterfeit Danish banknotes

Besides the withdrawal of counterfeit banknotes from circulation the police, in connection with their investigations, confiscate counterfeit banknotes that have not circulated. Such confiscated counterfeit banknotes do not entail an outright financial loss to society, but they are a potential threat before confiscation. The level of confiscated counterfeit Danish banknotes varies strongly from year to year, depending on when major cases are solved, cf. Chart 2.

The large number of confiscated banknotes in 2004 is attributable to, *inter alia*, a case from Vordingborg, involving confiscation of 3,500 counterfeit 1,000-krone banknotes at the beginning of the year. For many years the 1,000-krone banknote has been the denomination most frequently identified as counterfeit without being put into circulation. The banknote is an attractive counterfeiting target because of its high value, but it is harder to put into circulation as many people examine closely the 1,000-krone banknotes they receive.

CONFISCATED COUNTERFEIT DANISH BANKNOTES

Chart 2



Note: The figure for 2004 is up to and including April 2004.

Source: Danmarks Nationalbank and the police.

The security features of banknotes

Danmarks Nationalbank constantly seeks to prevent counterfeiting. In this respect, it has chosen to comply with the European banknote standard. The Danish banknotes are thus printed on cotton paper and incorporate classic security features, i.e. a watermark, a window thread with colour change, a thick layer of ink and a hidden security thread, as well as new features, i.e. a hologram and fluorescent colours.¹ The new security features make counterfeiting more difficult. The security features appear when the banknote is tilted, held to the light and felt.

In Denmark banknotes without the new security features are still legal tender, but will be exchanged for upgraded banknotes when worn. Danmarks Nationalbank has chosen to let non-upgraded banknotes remain in circulation, in view of the expenses of exchanging banknotes that are not worn, and because the incidence of counterfeiting is still limited in Denmark. If counterfeiting of non-upgraded banknotes becomes a serious problem, it will be possible to withdraw banknotes without the new security features faster than today and if required render them invalid at a notice. However, Denmark has no tradition of rendering banknote series invalid. All banknote series issued after 1945 are exchanged at face value by Danmarks Nationalbank. Old banknote series, i.e. banknotes issued before 1997, are no longer generally well-known and are thus more difficult to use. Therefore, they are not counterfeited.

Other countries, notably Australia, have introduced polymer banknotes.² One advantage of polymer banknotes is that it is more difficult and more expensive for laymen to produce good copies. The security features of polymer banknotes differ from the security features of paper banknotes in some respects. A frequently used security feature is a see-through window, often with a motif that may vary with the denomination. Like paper banknotes, polymer banknotes may have copper print, microprinted text and fluorescent colours whereas well-known security features such as a watermark and a hidden security thread are more difficult to incorporate in polymer banknotes than in paper banknotes. Instead, the polymer banknotes have a so-called shadow image, resembling a watermark, which is made by giving the banknote different degrees of transparency. The number of counterfeit Australian banknotes in circulation dropped after the introduction of polymer banknotes. Thus, the incidence of counterfeiting in Australia was at the same level as in Denmark in 2003.³

¹ The 50- and the 1,000-krone banknotes will be upgraded in the coming year.

² New Zealand, Thailand and Romania, among others, have introduced polymer banknotes wholly or partly.

³ Cf. Reserve Bank of Australia (2001), *Polymer Notes and the Meaning of Life*, and Reserve Bank of Australia's website at www.rba.gov.au.

COMBATING COUNTERFEITING

A combination of several different security features makes counterfeiting difficult since not all security features are reproduced well in counterfeit banknotes. Polymer banknotes, like in Australia, may also hamper laymen's attempts at producing counterfeits. Irrespective of material, ongoing improvement of security is necessary to make it as difficult as possible to copy banknotes. Danmarks Nationalbank follows the development closely and constantly seeks to make counterfeiting of Danish banknotes difficult.

Investigations are handled by the police. On receipt of a counterfeit banknote it must be submitted to the local police together with information on when and how it was received. Internationally, efforts to combat counterfeiting are carried out in cooperation with Interpol and Europol.

CONCLUSION

The security level and quality of banknotes, the public's familiarity with the look and security features of the banknotes, the maximum penalty, the size of the criminal network and police efforts are all factors affecting the incidence of counterfeiting. In other words, the level of counterfeit banknotes in a country is determined by a combination of several factors.

The number of counterfeit Danish banknotes in circulation has increased in recent years, but counterfeiting is still a limited problem in Denmark. In 2003 1,239 counterfeit banknotes were found in circulation.

With the technological development, counterfeiting has, over the last 10 years, gone from being a highly specialised crime to being a crime that anyone can commit. The ongoing technological development makes it very difficult to combat counterfeiting. Investigators of counterfeiting must be up to date on the latest technology, and the public must be familiar with the banknotes and their security features. A continued effort to combat counterfeiting is necessary in order to preserve confidence in banknotes.