Efficient cash payments with euro coins and banknotes in the Netherlands*

(Background material to the presentation to be held by Henny van der Wielen at the Banknote Printers Conference, Dresden, 6 - 9 September 2004)

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1. INTRODUCTION

Traditionally, since 1814, the Netherlands Bank (DNB) has a monopoly on the issue of banknotes. Later, around 1868, DNB started to participate as a clearing office for transferable money. Nowadays more means of payment are available, e.g. debit, credit and smart cards. And even more systems are coming, e.g. internet and telephone money.

Up to today, the Dutch believe that cash payments are for free, since costs are not very visible. This may change in the near future, since DNB will increase fix rates for the handling costs of cash money. DNB will also leave a part of the handling of cash to the banking sector, which may lead to ‘direct costing’ to the public for the use of cash.

In principle, DNB supports the idea of ‘direct costing’ of payments, for both cash and non-cash payments. Customer and retailer will thus become aware of the price of the payment itself and will be charged for these costs.

Finally the public will decide which means of payment they prefer. But the Dutch culture is that means of payment systems should be easily accessible at a low cost.

General policy of DNB is to make the pros and cons of the different means of payment visible to both individuals and society. DNB wants to be an open, transparent and professional partner of the public.

DNB has started over the last two decades several investigations into the use and costs of payment systems. Another important reason to do even more research was the introduction of the euro coins and banknotes. In this paper an overview is presented of the different studies made. Since this paper is presented to the Banknote Printers’ Conference, the emphasis will be on the use of cash.

Empirical studies

Over the years, several theoretical studies have been made on efficient denomination systems. It is concluded that in theory the euro with the 1-2-5 structure is a more efficient system than the guilder-system with the 1-2,5-5 structure [3]. Since empirical studies were lacking, this theory was never validated in daily life. This was one of the arguments for DNB to start an empirical study of cash payments by individuals. Three studies on the real behaviour of persons in a (micro) cash transaction were made, as is indicated in Table 1.

<table>
<thead>
<tr>
<th>Year</th>
<th>Currency</th>
<th>Research target</th>
<th>Time</th>
<th>How/where</th>
<th>Fieldwork</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>NLG</td>
<td>Use of denominations, payment amounts</td>
<td>1 week</td>
<td>All cash transactions at 69 points of sale, only retailers</td>
<td>Shield</td>
<td>1</td>
</tr>
<tr>
<td>2002</td>
<td>EUR</td>
<td>Use of denominations, payment amounts, wallet contents</td>
<td>Several weeks, October 2002</td>
<td>272 payments at two retailers</td>
<td>Erasmus University Rotterdam</td>
<td>6</td>
</tr>
</tbody>
</table>
| 2003 | EUR      | 1) Number of cash payments  
2) Cash payments and cash withdrawals  
3) Use of denominations, payment amounts and wallet contents | 1 week April 2003 | 1293 consumers Capi@Home panel | TNS-Nipo | 7 |

Table 1.
Overview of the empirical studies on cash payments made by DNB over the recent years.
The following will report on some of the empirical findings. The conclusions and the methods used are reported separately, but can now also be found in the doctoral dissertation of Jeanine Kippers, who initiated and guided most of the research [9]. Before these findings are reported, the cash payment system is positioned in the context of the other means of payment in the Netherlands, also based on research of DNB. Also a definition is given of an ‘efficient cash payment’.

2. MEANS OF PAYMENT IN THE NETHERLANDS

In the end, all efficiency theories can be reflected in the total costs of the cash payments. In a recent study - made under the auspices of the Dutch National Forum on Payment Systems (in Dutch ‘MOB’) - DNB concluded that the total costs for cash transactions are fairly high. Still, cash has the lowest average costs per payment [5], as presented in Table 2.

<table>
<thead>
<tr>
<th></th>
<th>Average costs per payment</th>
<th>Cost of one additional transaction</th>
<th>Cost of EUR 1 in extra sales</th>
<th>Average time needed</th>
<th>Average amount</th>
<th>Number of transactions (x millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Cash</strong></td>
<td>€ 0.30</td>
<td>€ 0.1117</td>
<td>€ 0.0069</td>
<td>19 s</td>
<td>€ 9.37</td>
<td>7,066</td>
</tr>
<tr>
<td><strong>2. Debit card</strong></td>
<td>€ 0.49</td>
<td>€ 0.1903</td>
<td>€ 0.00014</td>
<td>26 s</td>
<td>€ 44.13</td>
<td>1,069</td>
</tr>
<tr>
<td><strong>3. Prepaid card</strong></td>
<td>€ 0.93</td>
<td>€ 0.0333</td>
<td>€ 0.00001</td>
<td>14 s</td>
<td>€ 2.72</td>
<td>87</td>
</tr>
<tr>
<td><strong>4. Credit card</strong></td>
<td>€ 3.59</td>
<td>€ 0.7978</td>
<td>€ 0.0025</td>
<td>28 s</td>
<td>€ 115.22</td>
<td>46</td>
</tr>
<tr>
<td><strong>2002</strong></td>
<td>Average</td>
<td>€ 0.35</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>€ 14.39</td>
</tr>
</tbody>
</table>

Table 2.

Overview of some key figures of the different payments systems in the Netherlands. All figures concern the year 2002. Cheques are no longer used in the daily payments in the Netherlands since 2002. About 8,268 million payments were made in the Netherlands in 2002. Approximately 85 % of them are cash transactions (around 7,000 million) [7]. Banknotes are used in 75 % of all cash payments [1].

Table 2 makes it clear that prepaid cards (also named electronic purse, chip card or smart card) can become the cheapest means of payment, since the variable part of the costs of the use of a prepaid card is very low. The cost of one additional transaction is only 1 % of one eurocent (€ 0.0001)! But there is still some reluctance among the Dutch public to use the smart card.

In 2005 a new chip card will be introduced by the Dutch public transport. This prepaid card will replace all paper tickets in busses, subways and trains. This smart card will - unfortunately - be different from the existing smart cards of the banks, the ‘chipknip’. The system is planned to be fully operational in 2006.

3. EFFICIENT CASH PAYMENTS

Efficient cash payments are in the interest of the public, retailers, banks and the central bank. It is clear that the costs for counting, control, transportation, security, sorting and destruction will be reduced if people pay each other efficiently.
The definition of ‘efficient cash payment’ can be made from different views:
- number of coins and banknotes involved,
- time needed to settle the payment,
- time needed for an additional check on counterfeits.

**Number of coins and banknotes involved**
The most widely used definitions of efficient cash payments concern the average number of coins and banknotes that are involved to settle the payment.

*A cash payment between two persons is efficient when the total number of coins and banknotes used – including the change – is the minimum of all possible combinations of the amount of coins and banknotes needed to realise this cash transaction.*

**Time**
Another aspect of efficiency is the time needed for a payment. In Table 2 the time to settle a payment is given for the catering industry and retailers. From this research it is clear that a payment is settled faster with a smart card than with cash.

**Counterfeits**
Counterfeits will have a negative influence on the efficiency of cash payments. Shopkeepers will lose time and – if a counterfeit is accepted – money if there are too many counterfeits. There are, as far as we know, no studies available on what would be an acceptable level of counterfeiting in a cash system. At end of 2003 there were about 60 counterfeits per million euro notes in circulation. Is this an acceptable figure? For the retailers in the Netherlands it was not, in 2003 they faced 8 % more counterfeits than at the end of the guilder era (2001). See also paragraph 9.

**4. EMPIRICAL FINDINGS NLG**
Usually there is no registration of the coins and banknotes used in cash transactions. A payment of Netherlands Guilder (NLG) 9.95 can be done by

- a) a banknote of NLG 10 and a change of 5 cent, or by
- b) a banknote of NLG 25 and a change of one NLG 10 note, one NLG 5 coin and a 5 cent piece, etceteras.

For the purpose of this empirical research, cash payments were observed at the counter, where the combinations actually used were recorded as well as the payment amount. This survey resulted in a data set with information on almost 40,000 cash payments.

In short, the following conclusions were made, all valid for 1998 [1, 2]:

- About 85% of all payment settlements in a shop were done in cash. Most of them are small amounts: 97% of all settlements were below NLG 20 (or about EUR 10).
- In about 75 % of all cash payments, banknotes are used. And consequently about 25 % of all cash payments are made with coins only.
- A consumer will – on average – use 0.86 banknote and the retailer will return 0.61 banknote to settle the transaction. On average 1.5 banknotes are used in cash transactions that involve banknotes.
- On average the net receivables of a retailer is 0.25 banknote per cash transaction. Only the note on the note-coin boundary (NLG 10) had a net issue for the retailer.
- On average 3.5 coins are used by a cash transaction. A retailer will – on average – return 2.17 coins and the consumer will use 1.40 coin for a cash transaction.
- On average the retailer has a shortage of 0.77 coin per cash transaction.
The Dutch people have preferences for certain denominations. Some denominations are more popular than others, regardless of their contribution to an efficient payment.

The Dutch public clearly did not favour the NLG 50 banknote as it was used less than would be expected in cash payments.

5. FROM NLG TO EUR

The introduction of the ‘euro cash’ in 2002 would bring more denominations of both the coins and the banknotes to the Netherlands, as is shown in Table 3. The public would have a choice of two more coins and one more banknote. But more was to change, like the denomination system. Instead of a consistent quarter system for the guilders (1-2-5) the euro is based on a consistent 1-2-5 system. The traditional and popular ‘quarter’; a 25 cent piece would become a 20 cent piece, which is the euro equivalent of 10 euro cent. And a 50-cent piece would be introduced. Not easy for the central bank to predict the need of euro coins and banknotes. Another question was: would the public, because of the changeover, move to more electronic payments like debit cards or electronic purses?

There was also one thing that would not change: the subdivision of the currency would stay cent. The old guilder was divided into 100 cent, just as the new euro is equivalent to 100 cent!

Some factors relieved the task of DNB to predict the future needs of euro coins and banknotes. Comparing the NLG and the EUR could be done quite easily, since the note-coin boundary for both currency systems is more-or-less on the same value (NLG 10 = about EUR 5) and the exchange rate of the euro to the guilder was slightly over factor 2 (EUR 1 = NLG 2.2031).

Table 3.
Overview of the coin and banknote denominations in guilder (NLG) and euro (EUR).

<table>
<thead>
<tr>
<th>COIN</th>
<th>0.01</th>
<th>0.02</th>
<th>0.05</th>
<th>0.10</th>
<th>0.20</th>
<th>0.25</th>
<th>0.50</th>
<th>1</th>
<th>2</th>
<th>2.50</th>
<th>5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>NLG</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>EUR</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>X</td>
<td>x</td>
<td></td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BANKNOTE</th>
<th>1</th>
<th>5</th>
<th>10</th>
<th>20</th>
<th>25</th>
<th>50</th>
<th>100</th>
<th>200</th>
<th>250</th>
<th>500</th>
<th>1000</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>NLG</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>X</td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td>6</td>
</tr>
<tr>
<td>EUR</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>7</td>
</tr>
</tbody>
</table>

Still DNB was in need of more fundamentals to back up the forecasting of the number of euro coins and banknotes needed. How would the public react to the new euro cash system, to be introduced on 1 January 2002? Which denominations would become popular?

6. EMPIRICAL FINDINGS EURO

The findings for the euro currency are based on two investigations, the 272 payment observations in 2002 [6] and the 1,293 observations, done in 2003, through an internet survey among the Capi@Home panel [7]. The first investigation concerned the registration of actual cash payments at the counter. Afterwards, respondents were asked for the contents of their wallet. The internet survey was more elaborate, but took a different approach. Respondents were asked in general about their payment behaviour over the past 24
hours, such as their ATM use and number of (cash) payments, the specifics of their most recent cash payment (amount and the banknotes and coins used), and the contents of their wallet at the time of the survey. Some differences were found in the outcome of these two researches. Regarding the banknotes and coins used in cash payments, preference is given to the results of the real payments observations [6] instead of the outcome of the internet survey as the latter concerns stated behaviour afterwards. Comparing these two methods, it is clear that people do not recall very precisely their earlier cash payment behaviour.

This research lead to the following conclusions:

- Dutch people keep on average in their wallets 3 banknotes and 13 coins, with an average value of about 60 euro. Each wallet has on average about 2 coins of 1 and 2 eurocent. The average amount of coins and banknotes in the wallet of a Dutch citizen is given in Figure 1 [7].

![Figure 1](image-url)

*Figure 1.*
Average amount of euro banknotes and euro coins in the wallet of a Dutchman.

- To fill their wallets, most Dutch people use an ATM: 83 % of all cash withdrawals are made by ATM. The average amount is almost EUR 100. The retailers supply by their ‘cash back policy’ about 12 % of cash withdrawals [7].

- The ATM delivers on average 3.3 banknotes. Most of them are EUR 50 notes (36 %). Second are both the EUR 10 and EUR 20 notes (respectively 29 % and 26 %). Finally the EUR 5 is delivered in 9 % of the withdrawals [7].

- The banknotes withdrawn from the ATM are used to pay the retailers. Most cash transactions (61 %) matched the theoretical optimal transaction scheme. This is a significant outcome and it can be concluded that most individuals prefer to pay efficiently rather than inefficiently [6].

- The Dutch public is indifferent to the euro denominations. Because of the comparable value of the EUR 20 to the NLG 50 note, it was expected that the Dutch people would prefer the EUR 10 note to the EUR 20 note, but no preference for certain euro denominations was found [6].

- Around 8 % of the people used only one coin or one banknote, while this was not efficient. Reasons for this could be: laziness, time pressure or breaking a large denomination [6].

Efficient cash payments with euro coins and banknotes in the Netherlands
De Nederlandsche Bank NV
Presented to BPC/General Meeting 2004, Dresden
Figure 2.
Average euro denominations used by the public to settle a cash transaction.

- Figure 2 presents for each denomination (banknotes and coins) the average pieces used for a cash payment. The average number of euro banknotes is 1.1 and the average number of euro coins used is 1.3 [6].

- The euro 10 is the most used banknote; the euro 2 the most used coin [6].

- Around 4% of the people used an extreme number of coins. Reasons here could be a heavy wallet and to dispose of the coins at the shop [6].

- For some transactions it is not clear why they were made inefficiently. Probably it was too complicated to calculate an efficient transaction in the short time [6].

7. COMPARING ISSUE FIGURES NLG x EUR

In the light of some of the statements of paragraph 6 - like ‘the Dutch public is indifferent to the euro denominations’ - it is interesting to compare the circulation of the NLG and the EUR as is done in Table 4. Doing so we wish to point out that:
- the macro circulation figures include the hoarding, collecting and loss of cash. This should be taken into account when drawing conclusions on the popularity of banknotes and coins on the basis of these macro figures,
- in case of the euro conclusions are even more difficult to draw, because migration of bank notes and coins between countries of the euro zone affects circulation figures in the Netherlands,
- the only way to collect information on the use of coins and banknotes in cash payments, and draw conclusions on their popularity, is to observe cash payment behaviour at the counter.

Due to migration effects it is no longer possible to know the exact circulation of the euro in the Netherlands; net issues are used instead, which are defined as the total amount of cumulative issued banknotes by DNB.

The Netherlands are now a ‘monetary province’ of the euro area and it is no longer possible to know the exact circulation of the euro coins and banknotes. Just as in the guilder era DNB did not know the
circulation of the guilder in one of the Dutch provinces. In case of the guilder the net issues are similar to the circulation.

<table>
<thead>
<tr>
<th>Net issues of coins and banknotes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NLG</strong></td>
</tr>
<tr>
<td>Coins</td>
</tr>
<tr>
<td>0.01</td>
</tr>
<tr>
<td>0.05</td>
</tr>
<tr>
<td>0.10</td>
</tr>
<tr>
<td>0.25</td>
</tr>
<tr>
<td>0.50</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2.50</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Banknotes</th>
<th>%</th>
<th>%</th>
<th>Banknotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>2.3</td>
<td>NLG 5 note was replaced by a coin in 1988.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>9.3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>17.7</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>61.3</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>6.3</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>500</td>
<td>5.2</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>1,000</td>
<td>4.5</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100 %</td>
<td>100 %</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.
Overview of the circulation of the coins and banknotes of guilders (NLG) and the euro (EUR) as % of the total amount, based on net issuing of coins and banknotes. Figures are given for December 2000 (NLG) and December 2003 (EUR).

Most remarkable conclusion of Table 4 is the ‘negative circulation’ of the euro 20 note. The net effect is (issuance minus lodging) is negative. Not because the Dutch public would dislike the 20 euro denomination - this is not true as found in research [7] - but the reason must be the fact the euro 20 is the highest denomination in the ATMs of the neighbouring countries, while this is the euro 50 for the Netherlands, and these notes are migrating to the Netherlands.

Although caution should be used, some qualitative conclusions can be drawn from Table 4:

- The most popular coin in the guilder era was definitely the 10 cent (‘dubbeltje’). The most issued euro coin is – a bit surprising – the 2 cent piece, closely followed by the 1 cent piece. Their net issue figures are probably driven up by a low circulation rate. That is, if these small coins are not used as much in cash payments, which is likely due to their small size and low value, then they remain in wallets or in hoardings. Their ‘popularity’ in terms of net issue is therefore misleading.

- The least popular euro coin is – also unexpected - the 1 euro coin. It is partly explainable, because in the guilder system this position was taken by the 2,50 guilder, the euro equivalent for 1 euro. And here also, Figure 2 and 3 are more reliable indicators of the use of the 1 euro coin.

- The NLG 100 and its euro equivalent EUR 50 are in both systems by far the banknote denomination most used.

- The NLG 1,000 and its euro equivalent EUR 500 are in both systems the least popular denomination.
- Euro 5 banknotes are less popular than their guilder equivalent NLG 10, maybe because of migration of euro 5 notes to the Netherlands. Also, the NLG 10 banknote has been in circulation much longer, and its circulation figures also include notes that have been lost in circulation over the years.

8. EMPIRICAL TRIAL - ABOLISHMENT OF 1 AND 2 EURO CENT

Seen from an issue position seen the 2 eurocent is the most popular coin denomination in the Netherlands. Often there is discussion about its use. The need for the two lowest coins is questioned especially by the retailers in the Netherlands. These discussions were formalised within the National Forum on Payment Systems. It was concluded that savings up to 30 million euro a year could be made if the 1 and 2 eurocent pieces were abolished [8].

Also from a theoretical point of view, it was concluded that the denomination structure of the euro cash system would become more efficient if the 1 and 2 eurocent are removed [6].

Another argument was that DNB had learned from repeated questions in a so-called CENTER-panel that the public might be positive to a round off rule on zero/five eurocent for cash payments in shops.

To verify whether the public would agree, DNB organised an empirical trial to evaluate the daily use of the 1 and 2 eurocent coins. This trial was done in the town of Woerden and ran from 26 April - 6 June 2004. Around 130 shops, catering, gasoline stations and some others participated in this experiment; in total around 500 points of sale. One of the key questions is if the cash transactions are settled in less time when then the round off rule is used. This round off rule is:
- round down to zero: cash totals ending on 1 and 2 eurocent,
- round up to five cent: cash totals ending on 3 and 4 eurocent.

The outcome of the trial is that 83% of the Dutch public is in favour or indifferent to rounding off cash transactions. On forehand it was agreed that the threshold value for the opponents should be less than 20% for a countrywide implementation. With 16% opponents this is the case [8]. Rounding off cash transactions does not mean that the 1 and 2 eurocent will fully disappear. The introduction of the round off rule in the Netherlands should be formalised by the Dutch Minister of Finance; the removal of the 1 and 2 eurocent as legal tender needs a decision of the Ministers of Finance of the EMU.

Within the different countries of the euro area there seem to be different public attitudes towards the 1 and 2 eurocent coins. Finland started the introduction of the euro immediately with a cash round off rule on zero/five eurocent. And some other EMU countries also consider abandoning these two coins (e.g. Belgium, Greece). Other countries are clearly in favour, e.g. Germany, where only 3% of the population wants to abolish the 1 eurocent coin.

This experiment demonstrated again that DNB actively researches the field of cash transactions. This kind of research is more and more the basis for policy making.

9. PROBABILITY OF RECEIVING COUNTERFEITS

The empirical data that DNB has gathered can be used for an interesting calculation concerning counterfeits. The probability that a Dutch person would detect a counterfeit can be calculated as chance of 1 in 200,000 (see Table 5). This is done as follows. Yearly there are around 7,000 million cash payments in the Netherlands (Table 2). It is also known that banknotes are involved in 75% of cash payments. On average one banknote (more precise 0.86 banknote) is used to pay and also one banknote (0.61) is returned [1]. For sake of simplicity, it is supposed that both parties - consumer and shopkeeper - have the same chance of receiving a counterfeit during an average transaction and both have been rounded up to one banknote. Finally the total number of detected counterfeits is needed, which was around 26,000 in 2003. On the basis of these empirical data, the following calculation can be made:
Probability of receiving a counterfeit: \( (7,000,000 \times 0.75) / 26,000 = 5 \times 10^6 \) or 1 to 200,000 \( (1) \)

Counterfeited notes may pass from one person to another without them knowing that the note is a counterfeit. This may be called ‘bouncing’. However, the damage of a counterfeit is only manifest when the counterfeit is detected; the last person before detection will have a raw deal. The probability calculation is based on just one bounce, but in reality this probability will be smaller. If the retailer returns a counterfeit to the public, it will usually not be detected and the public will use this note again. But if the public pays - without knowing it - with this counterfeit, the chance that a shopkeeper might detect it is quite large. In other words; the probability of receiving a counterfeit by the public is higher than the probability that the public will detect a counterfeit. Therefore the outcome of formula (1) can be multiplied at least by two, which brings the chance for the retailer to receive a counterfeit after detection to 1 in 400,000.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public in NL</td>
<td>Probability of winning lottery 1 in 8 million</td>
</tr>
<tr>
<td>Public in NL</td>
<td>Probability of receiving a counterfeit 1 in 200,000</td>
</tr>
<tr>
<td>Retailers in NL</td>
<td>Probability of receiving a counterfeit 1 in 200,000</td>
</tr>
<tr>
<td>Retailers in NL</td>
<td>Probability of detecting a counterfeit 1 in 400,000</td>
</tr>
<tr>
<td>Retailers in NL</td>
<td>Damage shoplifting EUR 750 mln/year</td>
</tr>
<tr>
<td>Retailers in NL</td>
<td>Damage counterfeit notes EUR 0.6 mln/year</td>
</tr>
<tr>
<td>Retailers in NL</td>
<td>Damage counterfeit notes per retailer EUR 3</td>
</tr>
<tr>
<td>EMU</td>
<td>60 cf/mln</td>
</tr>
<tr>
<td>USD</td>
<td>Probability of receiving a counterfeit about 1 in 10,000</td>
</tr>
</tbody>
</table>

Table 5.
Overview of some appealing subjects to illustrate the relativity of the number of counterfeits.

10. PUBLIC KNOWLEDGE OF BANKNOTES

As stated before, counterfeits will hinder efficient cash payments. The more the general public is able to detect counterfeits, the more efficient the cash payments can be settled.

The results of public opinion polls on the knowledge and appreciation of banknotes by DNB have been published frequently; most recently at the Banknote 2003 Conference [3]. In Table 6 some of the latest results are given. One of the main conclusions is that the public knowledge of the euro security features dropped from an average of 2.3 features in 2002 to 2.0 in 2003. This was reason for DNB to start a new information campaign to for the public, using a new brochure ‘Forged or Genuine?’, training sessions for retail organisations and a CD-Rom explaining the security features, also called ‘Forged or Genuine?’). This learning module is also published on DNB’s website, so that retailers and the public can train themselves ‘online’ to gain a better knowledge of the euro security features.
Security features | 2002 | 2003
---|---|---
1. Watermark | 70 | 65
2. Security thread | 31 | 13
3. Hologram | 61 | 52
4. Special ink | 5 | 3
5. See-through register | 7 | 5
6. Feel of print, tactility | 7 | 5
Does not know one security feature | 11 | 18
Average knowledge | 2.3 | 2.0

Table 6. Public knowledge of security features of the euro banknotes in the Netherlands.

11. CONCLUSIONS

11.1 Investigate use of cash by observations
DNB has made several investigations into the use of cash by the Dutch public. Conclusions on the use of cash can only be drawn based on observations of real cash transactions at the spot and not on the basis of surveys like internet surveys or the use of macro figures.

11.2 Cash policy based on research to behaviour of the public
Policy making on cash issues by DNB is increasingly based on the outcome of investigations and experiments involving the public.

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