

THE USE OF EURO BANKNOTES – RESULTS OF TWO SURVEYS AMONG HOUSEHOLDS AND FIRMS

ARTICLES

The use of euro banknotes – results of two surveys among households and firms

Since the euro cash changeover in 2002 there has been a strong increase in the circulation of euro banknotes. To obtain a better understanding of this continued growth in demand, the ECB carried out two surveys among the general public and non-financial companies in several euro area countries. For the first time, these surveys provide information on the use of euro banknotes by households and companies within the euro area. This article describes the main results of the surveys and gives some insight into the differences in the use of cash¹ between various euro area countries. Starting with a description of developments in the circulation of euro banknotes, this article provides an estimate of the amount of transactions in cash in the euro area, details the use of cash by households and enterprises, and considers the value of cash used as a store of value. One of the conclusions is that the value of euro cash payments remains high, compared with card payments. The results of the survey also show that cash usage varies from country to country: of the countries surveyed, Italy, Spain and Austria were among the most intensive users of banknotes, whereas France and the Netherlands were found to use banknotes the least.

I INTRODUCTION

Since the euro cash changeover in 2002 it has become increasingly difficult to analyse and compare developments in banknote usage in the different countries of the euro area. The reason for this is that, as a result of the migration of banknotes across borders, it is no longer possible to determine the volume and value of banknotes in circulation in each country. This means that key indicators on cash usage, such as the average number of banknotes per capita or the share of banknotes in circulation as a percentage of GDP, can no longer be calculated by country in the euro area. Moreover, a comparison of countries based on the gross number of banknotes issued and returned does not help to explain differences in cash usage in the various countries, because the cash cycle is organised differently in each country. This means that basic data for analysing differences in the use of cash in the various euro area countries are no longer available, or are influenced by factors which make cross-comparisons difficult. Furthermore, standard sources from

monetary and financial institutions or from payment statistics do not reveal much about the use of banknotes among the general public or non-financial companies. It is therefore not possible to calculate the value of transactions in cash or the number of banknotes in circulation used for transaction purposes.

In line with its tasks of issuing euro banknotes and ensuring the smooth operation of payment systems, the Eurosystem has an interest in knowing how euro banknotes are used and by whom. Given that the available data and information on the use of cash in the various countries only offer a limited insight into the behaviour of cash users, and given that no cross-country study on the use of cash in the euro area had hitherto been conducted, the ECB carried out two surveys in 2008 and 2009 (see Box 1) among households and small and medium-sized enterprises (SMEs).

¹ The surveys only addressed the use of euro banknotes, not euro coins. In principle, “cash” refers solely to banknotes in this article.

SET-UP OF THE ECB'S HOUSEHOLD AND COMPANY SURVEYS ON THE USE OF CASH

The ECB's *household* survey on the use of cash was conducted in eight euro area countries (Belgium, Germany, Spain, France, Italy, Luxembourg, the Netherlands and Austria) between 18 September and 31 October 2008. A total of 8,175 people (aged 15 years and over; in France, aged 18 years and over) were interviewed in person. An initial survey with several questions had been held in all the euro area countries in spring 2008. Following this, the aforementioned eight countries were selected for further, more in-depth research. Together, the NCBs in these eight countries issued 92% of all banknotes in the euro area in 2008, and their share of total euro area GDP was 91%. It should be noted that, although the second survey was held in the period in which the turmoil on the financial markets reached its peak, the survey results were probably not significantly influenced by these developments, as most of the questions were of a structural nature. Moreover, the answers to the questions asked in the autumn survey were not significantly different from those of the spring survey.

The ECB's *company* survey on the use of cash was held in the same countries (except Luxembourg) as the household survey. The survey was held by telephone in two waves among 3,052 small and medium-sized enterprises (SMEs). The sample was comprised of 40% of companies with up to nine employees and 30% each of companies with 10-49 employees and 50-249 employees. Approximately 500 companies were interviewed in Germany and France, and 400 in the other countries. The survey was held in nine different sectors (see Chart 5 in the main body of the article), whereby a few sectors which were supposed to be more cash-intensive were slightly oversampled. The first wave of interviews was held in January 2009 to test whether the targeted sectors were indeed cash-intensive as assumed, and to assess whether the number of companies targeted per sector needed to be adjusted. The second wave of interviews was held in March and April 2009.

Results for both surveys have been weighted to correct for the different sampling rates in each country and sector in order to ensure the representativeness of the results. In addition, for the company survey, companies were weighted according to their turnover so as to better represent the economic weight of the different firms. To estimate results for the whole euro area (15 or 16 countries at that time), results were extrapolated assuming that the missing countries did not systematically deviate from the surveyed countries.

The purpose of these surveys was to generate a better understanding of the use of banknotes and, in particular, to estimate the amount of transactions in cash, the motives for such transactions and the value of banknotes hoarded. Several questions related to the spending behaviour of the interviewees, the income received in cash by companies and the use of cash as a store of value. As is usual with sensitive questions, biases may be present, for example through the under-reporting of amounts. Those who refused to participate in the surveys

may even have a behaviour that deviates from the average behaviour of respondents. Because of the sensitivity of the subject, it is clear that the results of the surveys should be interpreted with great care. Nevertheless, they provide a useful insight into the behaviour of households and companies in the various countries.

This article describes the main features of the surveys and highlights some of the most relevant findings. In order to put the surveys in perspective, Section 2 provides a description

of developments in the circulation of euro banknotes since the euro cash changeover in 2002. Section 3 presents an estimate of the total value of all cash transactions in the euro area. Section 4 shows the results of the questions on the use of cash by households, looking particularly at how people obtain and spend their cash in relation to other means of payment. Given the strong increase in the circulation of high denominations until 2008, this section also presents the results on the use of high-denomination banknotes. Section 5 looks at whether cash usage by households in the various countries is mirrored in the way companies use cash, and looks at the sectors in which cash is used the most. Section 6 examines the use of cash as a store of value and estimates the value of euro banknotes in circulation used for this purpose, comparing this estimate with the results of the survey. Finally, Section 7 draws some general conclusions.

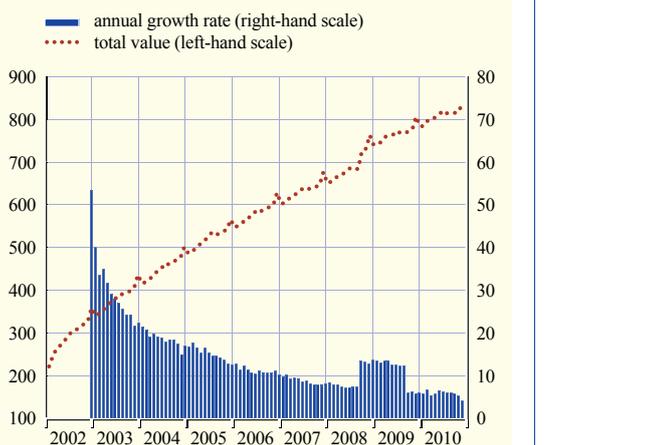
2 DEVELOPMENTS IN THE CIRCULATION OF EURO BANKNOTES

Between the end of February 2002, when the legacy currencies of the 12 countries that adopted the euro ceased to be legal tender, and the end of December 2010, the circulation of euro banknotes increased by 241%.² In value terms, this represents an increase from €246 billion at the end of February 2002 to €840 billion at the end of December 2010 (see Chart 1).

A noteworthy development occurred in October 2008 when there was a jump in the level of the value of euro banknotes in circulation following the collapse of Lehman Brothers. By breaking down the daily circulation of banknotes into a trend and a “Lehman Brothers” effect, an increased demand for euro banknotes with a total value of €35 billion is estimated between the end of September and the end of October 2008. Issuance data for that period show that two-thirds of this additional demand – a large part of which came from abroad – was for €500 banknotes. As banks’ vault cash did not increase significantly in this period, the additional

Chart 1 Circulation of euro banknotes

(annual percentage change; EUR billions)



Source: ECB Currency Information System.

demand can be attributed fully to the store-of-value function in a period of exceptionally high uncertainty. By the end of 2009 the one-off effect of the financial crisis on banknote circulation was no longer visible in the annual growth rates, which means that there are no clear signs of a significant return of those banknotes demanded as a store of value during the height of the crisis.

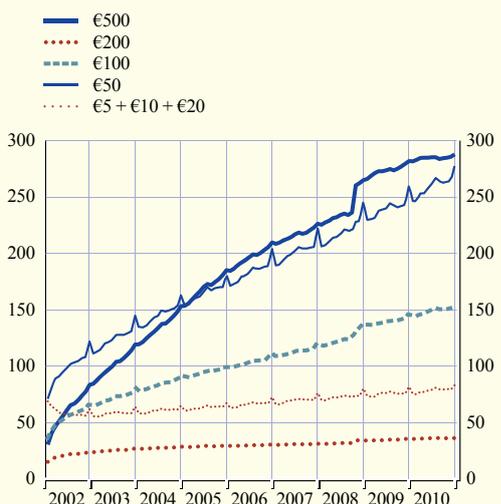
Since the euro cash changeover in 2002 the growth in circulation has mainly been accounted for by the strong increase in the circulation of the €500, €100 and €50 banknotes (see Chart 2). In 2010 only the circulation growth of the €50 and €100 banknotes stood out, with annual growth rates of 5.4% and 6.7% respectively. For that same year, the other denominations had annual growth rates of between -0.1% (€10) and 2.3% (€20).

The shares of these denominations in the value of the circulation have not changed very much since 2004: both the €50 and €500 banknotes each have a share of around one-third, and the €100 banknotes have a share of 18% of the

² The four countries which joined the euro area between 2002 and 2010 explain only a marginal part of this increase.

Chart 2 Circulation of different denominations

(value in EUR billions)



Source: ECB Currency Information System.

circulation value. This distribution, whereby around two-thirds of the circulation value is held in the €50 and €500 denominations, is relatively close to that observed before the euro cash changeover for an equivalent value of Deutsche Mark denominations.

Previous studies have shown that only a limited part of the euro banknotes in circulation is used for transaction purposes.³ Updating an earlier estimation from Fischer et al., the circulation of banknotes to facilitate all cash transactions in the euro area would amount to around €250 billion in 2008, or around one-third of the total value of banknotes in circulation at the end of 2008. Apart from banks' vault cash, the remainder must have been used as a store of value or held abroad (see Section 6).

3 MEASURING WHAT IS NOT RECORDED: ESTIMATING THE VALUE OF CASH PAYMENTS IN THE EURO AREA

Because, by their nature, cash payments are not recorded, only indirect methods can be used to estimate the value of all cash transactions.

The two ECB surveys on the use of cash make it possible to determine an approximate range for the value of cash payments.

Based on the ECB's company survey on the use of cash (see Box 1), it is estimated that the value of transactions paid in cash in 2008 amounted to around €1,400 billion in the sectors of activity covered by the survey. As the survey did not cover all sectors (although it is understood that little cash is used in the sectors not covered by the survey) and did not include non-business transactions,⁴ the total value of all cash transactions in the euro area in 2008 is probably higher than this estimate.

This estimation of the value of all cash transactions seems to be confirmed by comparisons with the value of cash withdrawals from automatic teller machines (ATMs) and withdrawals over the counter at banks. In 2008 €899 billion was withdrawn from ATMs in the euro area, according to ECB payment statistics. Based on data from the ECB's household survey on the use of cash and the ECB's payment statistics, it is estimated that the value of all over-the-counter (OTC) cash withdrawals from banks in 2008 amounted to between €900 billion and €1,200 billion. This means that the total value of cash withdrawals in 2008 would probably have been between €1,800 billion and €2,100 billion. Indeed, cash withdrawals are also made by retailers for use as change, while cash is also withdrawn for use as a store of value. On the other hand, banknotes can be used

3 See, for example, Fischer, B., Köhler, P., Seitz, F., "The demand for euro area currencies: past, present and future", *Working Paper Series*, No 330, ECB, 2004, or a recent study from the Deutsche Bundesbank entitled *Where does the cash in your wallet come from? An empirical study of the cash withdrawal behaviour of the German population at ATMs and bank counters in Germany*, 2010, available on its website (<http://www.bundesbank.de>).

4 For an indication of the value of non-business transactions, see the Deutsche Bundesbank study entitled *Payment behaviour in Germany. An empirical study of the selection and utilisation of payment instruments in the Federal Republic of Germany*, 2009, which is available on its website (<http://www.bundesbank.de>). According to this, around 8% of household cash in Germany was used for private-to-private transactions.

more than once for a transaction.⁵ This is the case, for example, when a retailer offers cashback facilities⁶ or fills a stand-alone ATM with cash from its tills. Nevertheless, the value of cash withdrawals for non-transaction purposes and the re-use of cash outside the banking system must be relatively small in relation to the total value of all cash withdrawals.

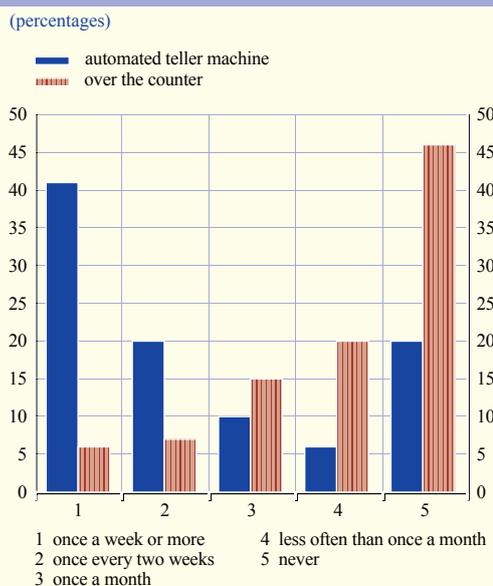
Compared with the total value of all electronic payments with debit and credit cards, which, according to ECB payment statistics, amounted to just below €1,000 billion in 2008, the value of all cash transactions was probably around 1.5 to 2 times the value of all electronic payments at points of sale in the euro area. This does not necessarily mean, however, that cash is the most used payment instrument at points of sale in the euro area. Contrary to electronic means of payment, the number – and consequently also the average value – of cash transactions in the euro area is unknown. Moreover, especially for high-value transactions, alternative means of payment (e.g. cheques and credit transfers) can also be used, whereas there is normally a limit on the value that can be paid by cards. For this reason, cash can also be used as an alternative for transactions with a value that exceeds the limits allowed by cards.

4 THE USE OF CASH BY PRIVATE HOUSEHOLDS

CASH WITHDRAWALS BY HOUSEHOLDS

The results of the ECB's household survey indicate that cash withdrawals from ATMs tend to be frequent, with 41% of respondents withdrawing cash from an ATM at least once a week, and another 20% withdrawing cash from an ATM once every two weeks (see Chart 3). Table 1 shows that, in Spain and Italy, fewer respondents than in the other surveyed countries said they used ATMs frequently. In these two countries, more than one-third of interviewees said they never use an ATM for cash withdrawals, while the corresponding share in all the other countries surveyed was somewhere between 4% (Netherlands) and 14% (Austria).

Chart 3 Share of respondents withdrawing cash from ATMs or OTC with a certain frequency



Source: ECB household survey on the use of cash.

Overall, on average, 20% of respondents in the countries surveyed indicated that they never use an ATM to obtain cash.

Fewer withdrawals might imply larger withdrawals in terms of value and, to a certain extent, this is indeed the case. Average amounts withdrawn from ATMs are higher in Italy than in France or the Netherlands, although the total value withdrawn per capita per year is ultimately very similar in France and Italy, whereas it is much higher in the Netherlands, Germany and Belgium.

The frequency of OTC cash withdrawals from banks is considerably lower than that of ATMs. Only 14% of the interviewees claimed to withdraw cash via this channel at least once every two weeks, and 46% of respondents indicated that they never made OTC cash withdrawals

- 5 In terms of cash turnover, a banknote is normally used only once, since cash received by a retailer from one customer and given back as change to another customer does not contribute to cash turnover.
- 6 A cashback facility is a service whereby the customer pays with a debit or credit card a higher amount to the retailer than the value of the purchase and receives the difference back in cash.

Table 1 Share of respondents withdrawing cash

(percentages)

| | At least every two weeks | | Never | |
|--------------------|--------------------------|-----|-------|-----|
| | ATM | OTC | ATM | OTC |
| Belgium | 73 | 14 | 13 | 48 |
| Germany | 65 | 10 | 11 | 44 |
| Spain | 52 | 25 | 35 | 29 |
| France | 68 | 11 | 12 | 59 |
| Italy | 46 | 16 | 36 | 40 |
| Luxembourg | 74 | 16 | 9 | 34 |
| Netherlands | 75 | 2 | 4 | 84 |
| Austria | 65 | 14 | 14 | 30 |
| Average | 60 | 14 | 20 | 46 |

Source: ECB household survey on the use of cash.

(see Chart 3). Again, as Table 1 shows, there are clear differences between the various countries surveyed. In the Netherlands, only 2% of the respondents said they withdrew their cash over the counter at least once every two weeks, while in Spain a quarter of all respondents made OTC withdrawals with the same frequency.

In general, the survey indicated that the average value of an OTC withdrawal is significantly higher than that of an average ATM withdrawal, although, as Table 2 shows, there is quite a wide divergence across the various countries.

Although there seems to be a connection between the availability of ATMs⁷ and the frequency of the cash withdrawals in some countries, differences in the frequency and average amounts of withdrawals in the various countries cannot be explained by the availability of ATMs alone. For example, the number of ATMs per capita in France and the Netherlands is among the lowest of all the countries surveyed, but the frequency of withdrawals in these countries is among the highest; whereas, in Spain, although the number of ATMs per capita is one of the highest of all the countries surveyed, ATM usage is below the average. One of the explanations for this could be that, in some countries, cash withdrawals from ATMs are charged when the person withdrawing the money uses a card which has been issued by an institution (or group) different to the one

Table 2 Average amount typically withdrawn for all withdrawals

(in EUR)

| | ATM | OTC |
|--------------------|-----|-----|
| Belgium | 110 | 273 |
| Germany | 214 | 453 |
| Spain | 109 | 286 |
| France | 89 | 277 |
| Italy | 198 | 370 |
| Luxembourg | 175 | 661 |
| Netherlands | 91 | 717 |
| Austria | 170 | 390 |
| Average | 151 | 356 |

Source: ECB household survey on the use of cash.

operating the ATM. This therefore limits the availability of ATMs from which cash can be withdrawn free of charge and increases the incentive to withdraw more money at once at machines where it can be done free of charge, or to make a withdrawal over the counter at a bank. Nevertheless, it seems that behavioural factors specific to the public of individual countries also play a role.

THE USE OF CASH FOR PURCHASES

As regards the use of cash, the results of the survey indicate that a very large proportion (87%) of small purchases (i.e. those with a value less than €20) is paid for in cash. Furthermore, cash is also the most important means of payment for purchases up to a value of €100, but not for those over €100. In general, the higher the amount of the purchase, the less likely it is that the payment will be made in cash (see Table 3). Nevertheless, 4% of respondents replied that they normally pay for purchases with a value of over €5,000 and over €10,000 in cash, and another 2% and 3% respectively said that they pay for part of these purchases in cash. Given the limitations of cards for making high-value payments and the fact that cash is the only means of payment

⁷ For the number of ATMs per country, see ECB payment statistics.

Table 3 Percentage of respondents always or often using cash for different kinds of purchases by country

(percentages)

| | Average | BE | DE | ES | FR | IT | LU | NL | AT |
|--|---------|----|----|----|----|----|----|----|----|
| Purchases less than €20 (e.g. newspapers, bread) | 87 | 84 | 91 | 90 | 80 | 91 | 77 | 65 | 82 |
| Purchases between €30 and €100 (e.g. fuel, groceries) | 55 | 48 | 69 | 64 | 15 | 77 | 27 | 20 | 60 |
| Purchases between €200 and €1,000 (e.g. clothing, furniture) | 20 | 18 | 21 | 30 | 3 | 31 | 10 | 8 | 29 |
| Purchases over €10,000 (e.g. a new car) | 4 | 5 | 4 | 6 | 0 | 4 | 3 | 4 | 10 |

Source: ECB household survey on the use of cash.

for settling a transaction on the spot, it is likely that some high-value payments are made, at least partly, in cash. The most cash-averse countries, according to the survey, were France and the Netherlands, followed by Luxembourg. Cash purchases over €100 are most common in Italy, Spain and Austria, where almost one-third of the interviewees always or often use cash for purchases between €200 and €1,000.

THE USE OF HIGH DENOMINATIONS

The household survey also contained a question about how often people encounter €500 or €200 denomination banknotes. The results show that, although 56% of respondents have never come across a €500 banknote, and 44% of respondents have never had a €200 banknote in their possession, 25% of respondents have had either a €500 or a €200 banknote in their possession more than once per year while another 33% claimed to have come across these banknotes at a frequency of once per year or less. Table 4 shows the countries which are the most frequent users of high-denomination banknotes.

Frequent high-denomination users are most prevalent in Luxembourg, followed by Italy, Austria, Belgium and Spain. Those who never use high denominations can mainly be found in France and the Netherlands. Apart from Luxembourg, the use of high denominations in the various countries is in line with the general trends of cash usage (see Box 2 for an alternative analysis of differences between countries). Interestingly, in Luxembourg, most respondents said that they had a high-denomination banknote in their possession, although general cash usage is relatively low compared with other countries where high denominations are used more often. In all countries, the most frequent high-denomination users are likely to be male, aged between 25 and 54, and self-employed. When asked about how they obtained the high-denomination banknotes, 47% of respondents said that they withdrew them from their bank account, 18% received them as a payment for the sale of goods or services, 12% received them as part of their salary, and 10% received them as a gift.

Table 4 Share of respondents who had a €500 or €200 banknote in their possession

(percentages)

| | More than once a year | Never |
|-------------|-----------------------|-------|
| Belgium | 35 | 37 |
| Germany | 22 | 34 |
| Spain | 33 | 23 |
| France | 9 | 72 |
| Italy | 39 | 31 |
| Luxembourg | 45 | 17 |
| Netherlands | 8 | 68 |
| Austria | 37 | 24 |
| Average | 25 | 41 |

Source: ECB household survey on the use of cash.

Box 2

A MULTIPLE FACTOR VIEW OF THE USE OF BANKNOTES ACROSS COUNTRIES

In order to make sense of the results in a summarised view, and as is customary for survey data, a multivariate analysis is helpful. Since the questionnaire used mainly categorical questions, the appropriate tool is multiple correspondence analysis (MCA).

The aim of the MCA is to determine common factors behind a set of variables and to summarise relationships between them.¹ A sub-set of questions from the ECB’s household survey was used, namely the questions on the use of ATMs and OTC transactions, the use of high denominations, the storing of banknotes and the purchase patterns for low-price items. Two main dimensions were identified by the MCA, together explaining 61% of the total variation in these variables.

The first dimension, with an explanatory power of 41% of total variation, mostly distinguishes between “cash-addict” and “cash-averse” answers (see the chart). All other things being equal, people who have seen a €500 banknote more often have a higher score along this axis, while those who have never seen one have a negative score. People who pay in cash for transactions between €30 and €100 have positive scores along this dimension, while those who never pay in cash are at the other extreme. On this dimension, there is a clear contrast between countries, with Italy (1.8), Spain (1.3), and Austria (1.2) at one extreme, France (-2.1) and the Netherlands (-2.0) at the other, and Belgium and Luxembourg in the middle (0.0).² This range of country scores,

1 Le Roux, B. and Rouanet, H., *Geometric data analysis: from correspondence analysis to structured data analysis*, Kluwer Academic Publishers, Dordrecht, The Netherlands, 2004.
 2 Numbers in brackets are the coordinates of the average of the country (to be precise, the normalised coordinates of the centre of mass of the observations from each of the countries); values of -2 or 2 indicate a clear and strong separation between the categories.

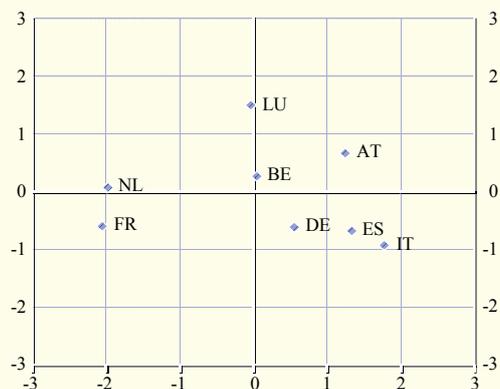
Multiple correspondence analysis – first two dimensions

- x-axis: first dimension
- y-axis: second dimension
- how often cash is used to pay amounts less than €20
- ▲ how often withdrawals are made from ATMs
- how often a €500 banknote has been seen
- ◆ country of residence

(a) Active variables



(b) Supplementary variables



Source: ECB household survey on the use of cash.

from -2.1 to 1.8, is much wider than the difference in other characteristics of respondents: for example, men and women score 0.1 and -0.1 respectively, while people under 30 and over 65 are only slightly more separate, with -0.2 and 0.5 respectively. This implies that men and older people belong to the “cash-addict” category slightly more than women and younger people. Respondents with higher incomes score slightly negatively along this dimension (-0.4). In other words, along this first dimension of intensive versus non-intensive users of banknotes, country differences are much more significant than other personal characteristics.

The second dimension, which explains 20% of total variation, distinguishes between what could be called “balanced” users of cash on the positive side (e.g. respondents who often go to an ATM, but do not make purchases every time in cash, those who have also withdrawn larger-than-usual amounts over the counter and those who use cash as a store of value) and “all or nothing” users, who tend to take more extreme positions regarding cash and its use (e.g. those who never go to ATMs or have never seen a €200 banknote, but also those who always pay for their purchases in cash). People with higher incomes are ranked on the “balanced” side of this dimension (1.6 for those who earn more than €4,700 per month), whereas people with low incomes or who have self-reported financial problems have a clear negative score (-2.2 for those who earn less than €900 per month). Unemployed people, as well as the under 30s and the over 65s, are also, on average, in this “all or nothing” category. Luxembourg and Austria sit on the “balanced” side of the scale, while Italy, France, Spain and Germany lean the other way. The differences between countries are much smaller along this second dimension, Luxembourg having a score of 1.5 and Italy -0.9.

5 USE OF CASH BY COMPANIES

INCOME RECEIVED IN CASH

Given the clear differences, as detailed above, in the use of cash by households, it is reasonable to expect similar differences in the use of cash by companies, especially as regards the share of turnover in cash. And this does indeed appear to be the case. Of the companies surveyed, 62% reported that they receive some of their annual income in the form of cash. Looking closer at the distribution of cash income, it appears to be skewed towards a low proportion of total cash income: 30% of the companies surveyed receive between 1% and 20% of their income

in cash. For 19% of the companies surveyed, cash is the most important part of their income, as these companies receive 50% or more of their income in cash (see Table 5). As regards the geographical distribution, the results of the household survey are again echoed in the survey of companies, with Austria, followed by Spain and Germany, having markedly more businesses that claim to receive more than 50% of their annual income as cash. France has relatively few companies receiving at least half of their turnover in cash (see Chart 4).

Looking at the sectors where cash is used most, clear differences can be observed (see Chart 5). Hotels and restaurants receive by far the

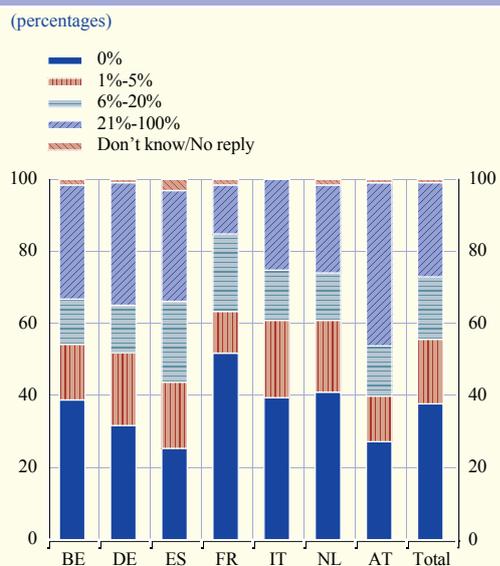
Table 5 Average proportion of annual turnover in cash in the countries surveyed

(percentages)

| | Proportion of annual turnover in cash | | | | | | Don't know/No reply |
|--------------------|---------------------------------------|-----|------|-------|-------|--------|---------------------|
| | 0 | 1-5 | 6-19 | 20-49 | 50-79 | 80-100 | |
| Share of companies | 38 | 18 | 12 | 12 | 9 | 10 | 1 |

Source: ECB company survey on the use of cash.

Chart 4 Proportion of annual turnover in cash in the countries surveyed



Source: ECB company survey on the use of cash.

greatest share of their annual turnover in cash; over 50% of them receive more than half of their turnover in cash. The wholesale and retail trade follows, with 28% of companies receiving more than half of their income in cash.

The distribution of cash income in the trade and repair of motor vehicles sector is similar to that for the overall wholesale and retail trade (which does not include the trade and repair of motor vehicles), even though a larger share of the motor vehicles sector seems to receive part of its income in cash. The survey data also indicate that firms with a smaller turnover receive a larger part of their turnover in cash.

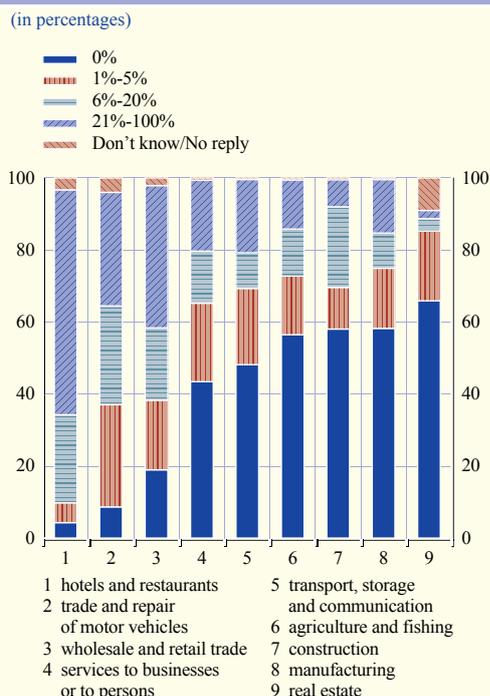
Just over two-thirds of the companies deposit 70%-100% of their cash income at a bank within one month of receiving it. Of all companies that deposit part or all of their income in cash within a month, 60% do so at least once a week.

EXPENDITURE IN CASH

As regards companies' expenditure, the survey results indicate that cash payments constitute only a small part of the total expenditure of companies. In total, 38% of the companies surveyed said that they did not use cash at all for their expenditure, while another 31% claimed to pay 5% or less of their expenditure in cash. 15% of the companies spent 6%-20% in cash, and only 11% of the companies paid more than 20% of their expenses with cash. Two-thirds of the companies that pay some amount in cash said that they spend less than €1,000 in cash each month, and another 27% had monthly cash expenses of between €1,000 and €10,000. Of all the sectors surveyed, the hotel and restaurant sector had the largest share of expenses paid in cash; this sector also had the largest share of turnover in cash (see Chart 6).

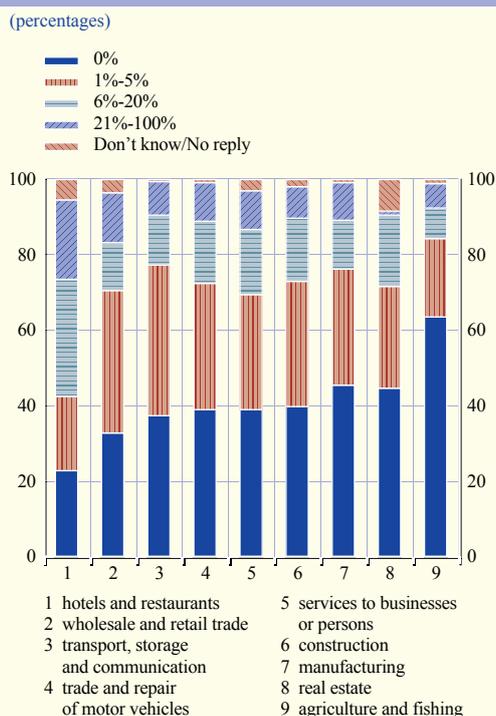
Companies in Austria reported spending the largest share of their expenses in cash, with 19% of companies covering more than 20% of their monthly expenses with cash (see Chart 7). At the other extreme, only 5% of French companies used cash to cover more than 20% of

Chart 5 Proportion of turnover received in cash by sector for all countries surveyed



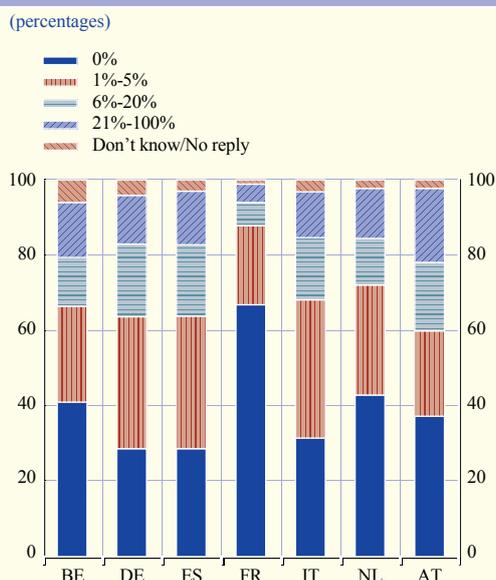
Source: ECB company survey on the use of cash.

Chart 6 Proportion of expenditure in cash by sector for all countries surveyed



Source: ECB company survey on the use of cash.

Chart 7 Proportion of expenditure in cash by country



Source: ECB company survey on the use of cash.

their expenses, while 66% of these companies do not use cash for their expenses at all.

On the basis of the survey, and taking a number of assumptions into account, it can be estimated that companies in the euro area paid around €350 billion in cash in 2008. A certain amount of the money used for these transactions may have come from the cash the companies received from their customers.

6 THE USE OF CASH AS A STORE OF VALUE

As described in Section 2 of this article, only around one-third of the banknotes in circulation at the end of 2008 were used for transaction purposes, while the rest were either used as vault cash, a store of value in the euro area or held abroad. According to the banks' balance sheets, €60 billion was held as vault cash at the end of 2008. Furthermore, it is estimated that, at the end of 2008, between 20% and 25% of the euro banknotes in circulation were held abroad,⁸ so the remaining part (between €250 billion and €300 billion) would have been used as a store of value in the euro area.

To obtain more information about the amounts held as a store of value, the survey among households also contained a specific question regarding the cash that households keep as a store of value. However, given the likelihood that not all interviewees were fully open about their cash holdings, the survey results should only be regarded as the minimum amount held as a store of value. According to the household survey, 57% of those surveyed said that they did not keep larger amounts of cash than they needed for everyday purchases. A third of all respondents who do use cash as a store of value said they stored an amount less than €1,000. Only 2.8% of respondents said that they stored between €1,000 and €5,000, and 0.5% said that they stored more than €5,000. 2.9% said that they stored cash, but did not say how much.

⁸ See *The international role of the euro*, 2010, available on the ECB's website (<http://www.ecb.europa.eu>).

In the light of these results, and making cautious assumptions, it can be said that a minimum of €75 billion was stored by households in the euro area in 2008. Based on the results of the company survey, it is estimated that companies in the euro area stored around €25 billion in 2008. This means that, based on the results of the survey, at least €100 billion was stored in cash in the euro area in 2008, which is significantly lower than the above estimate of roughly €300 billion.

Given the very small sample size of those respondents who claimed to store amounts above €5,000 and those who said they stored cash but did not say how much, caution is warranted when interpreting the survey results. This had already been reported in a similar study by the Deutsche Bundesbank.⁹ Nevertheless, in line with general knowledge about the distribution of income, and more specifically of wealth, the survey results confirmed that the holding of cash is highly skewed towards a very small portion of the population holding significant amounts of cash as a store of value. But the highly skewed distribution of cash holdings, in addition to possible under-reporting, makes it difficult to make a direct estimation of the amounts held in cash.

7 CONCLUSION

Surveys carried out by the ECB among households and companies show that, in the euro area in 2008, cash was an important means of payment, and the value of cash transactions was still between 1.5 and 2 times the value of electronic payments at points of sale. Cash seems to be the most preferred means of payment for transactions below €100, but a considerable number of people (20% of respondents in the countries surveyed) usually pay with cash even for amounts up to €1,000. There are considerable differences in the behaviour of households in the various countries. In countries such as Austria, Italy and Spain, people use cash more often and pay larger amounts with cash. On the other side of the spectrum are France and the Netherlands, where cash is used the least.

It is not surprising that cash is used most widely in the hotel and restaurant sector, followed by retail and wholesale trade. In these sectors, the largest share of companies' expenditure is paid in cash. Overall, however, it can be concluded that companies only pay a small share of their expenditure in cash.

Both the direct results of the survey and the indirect method of estimating the value of cash used as a store of value suggest that the amount of cash stored in the euro area is significant, compared with the value of banknotes in circulation, albeit remaining small compared with the total value of bank deposits. The opportunity costs of holding cash, which have been at an all-time low as a result of the low inflation and low interest rates since the introduction of the euro, have contributed to this phenomenon. Although the surveys were held in 2008 and 2009, there are no indications that the use of cash has changed substantially since then, but the share of total transactions made up by electronic payments has probably slightly increased over recent years due to an increase in the number of payment terminals, improvements in infrastructure, and campaigns that promote electronic payments. Looking ahead, for the medium term, it can be expected that cash will remain an important means of payment, with new means of payment having only a moderate impact.

⁹ See footnote 4.