



# The role of cash in a society with low usage of cash

The use of cash in Denmark has been declining for a number of years. This trend may well continue, and will have various implications for the role of cash in society.

In this analysis, Danmarks Nationalbank looks at the role of cash today as well as the challenges that can arise in a society with a low usage of cash with a view to ensuring that citizens and businesses continue to have access to secure and efficient payments in Denmark.

---

Written by

**Jakob Mølgaard Heisel**  
Senior Retail Payments Economist  
jmhe@nationalbanken.dk  
+45 3363 6151

---

📄 50 pages

---



## Cash is needed in Denmark – and it will also be needed in the future

Cash is used as a means of payment in both stores and between private individuals. In addition, cash has a number of special characteristics which, for various reasons, a small group of citizens are dependent on.



## New measures to support secure and efficient cash payments

To ensure that cash remains a secure and efficient means of payment in the future, Danmarks Nationalbank will issue a new series of banknotes, while older series of banknotes and the 1,000-krone banknote will be withdrawn from circulation.



## It may make sense to ease the cash obligation to support secure and efficient payments

As the use of cash decreases, and more and more stores rarely have customers who want to use cash, it may make sense to ease the stores' obligation to accept cash.



## At the moment, there is no need to impose an obligation for banks in relation to their cash services

The adjustment in the cash infrastructure is natural in view of the declining use of cash in society. However, any further adjustment must happen without impairing access to cash and cash services.

## Why is it important?

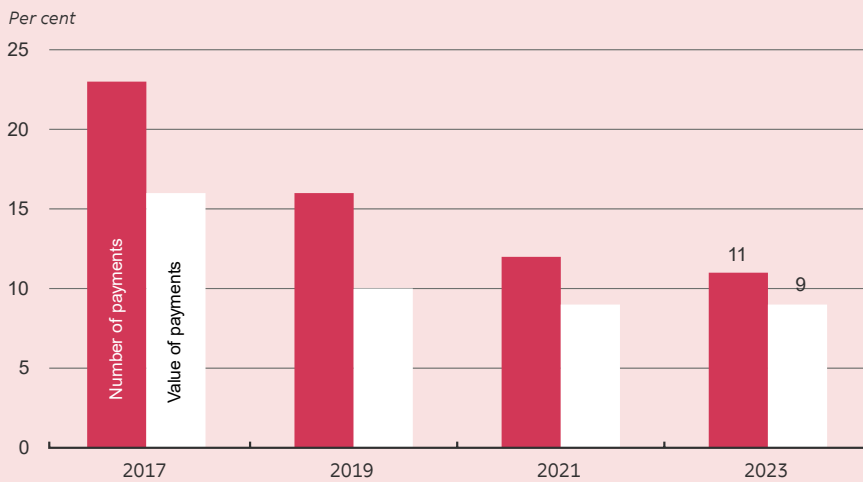
One of Danmarks Nationalbank’s main objectives is to contribute to secure and efficient payments in Denmark. Therefore, it is important that Danmarks Nationalbank identifies and analyses how the declining use of cash affects society both now and in the future so that citizens and businesses continue to have access to secure and efficient payments in Denmark.



**Although the use of cash is declining, it is still needed in society.**

— Christian Kettel Thomsen,  
Governor of Danmarks  
Nationalbank

## Declining use of cash in Denmark



Note: The chart shows cash payments as a proportion of all payments in physical trade.  
Source: Danmarks Nationalbank.



Cash payments are being made less frequently in both physical trade and between private individuals in Denmark.

## Topics

- Payments
- Cash
- Banknotes and coins
- Digitalisation
- Money
- Central banks

# Contents

<b>01 Declining cash usage in Denmark</b>	<b>4</b>
Cash payments are in decline	6
Cash usage is evenly distributed among people over 30	7
New alternatives reduce cash payments between private individuals	8
Declining cash usage primarily driven by demand	9
Few cash payments between businesses	11
Citizens, banks and stores holding less cash	11
<b>02 Special characteristics of cash</b>	<b>15</b>
Cash as a means of payment in Denmark	17
Cash as a physical store of value	24
The anonymity of cash	25
Cash is only a supplementary payment contingency measure	26
Cash as central bank currency	27
<b>03 Cash infrastructure and cash services in Denmark</b>	<b>30</b>
Less cash reinforces new deposit and withdrawal trends	31
Withdrawal of cash is adjusted to the needs of society	33
Depositing of cash in self-service cash services	36
Focus on cash deposits may be necessary in the future	38
Access to cash services at the counter	40
Few citizens find that withdrawal and deposit options pose challenges	41
<b>04 Cash must remain a secure and efficient means of payment also in the future</b>	<b>43</b>
Old series of notes and coins account for nearly kr. 4 billion of cash in circulation	45
Recall of older banknotes	45
The banks must handle the submission of older series	46
The 1000-krone banknote is not necessary to support secure and efficient payments	46

# 01

## Declining cash usage in Denmark

In recent decades, cash plays a decreasing role for citizens and businesses in Denmark. The decline in cash usage for payments and savings is a natural development in light of Danes' willingness to embrace new digital payment solutions combined at the same time with the digitalisation of Danish society. It should also be seen in light of the numerous public and private initiatives to accelerate digitalisation, see chart 1.<sup>1</sup>

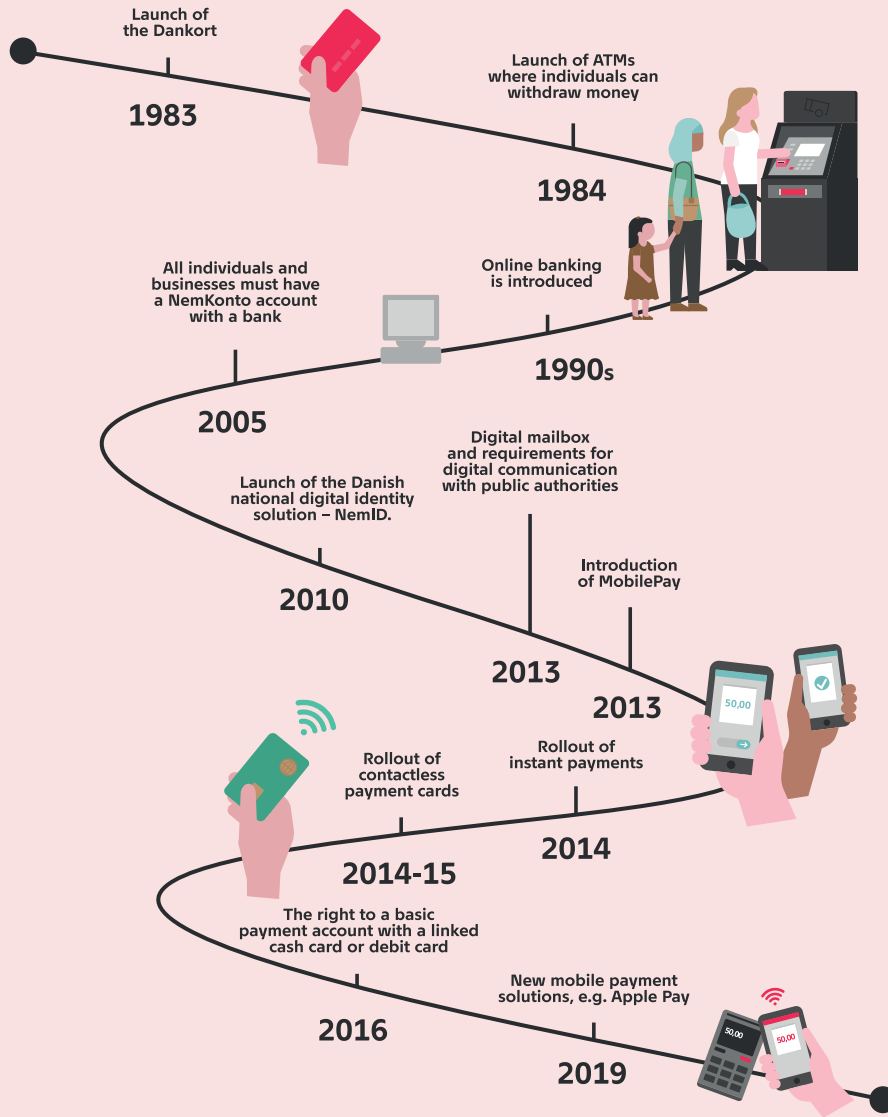
The declining use of cash has meant a general decline in the demand for cash, and the development in cash usage for payments also suggests that more people will live their lives without using cash in future. This will have consequences for the role of cash in society, and has already resulted in major changes to the cash infrastructure and the need to continually adapt legislation on the use of cash for payments.

Danmarks Nationalbank plays a central role in both cash management and in supporting the role of cash as a secure and efficient means of payment. Therefore, Danmarks Nationalbank has sought to identify potential challenges and their impact on whether citizens and businesses continue to have access to secure and efficient payments in Denmark.

<sup>1</sup> See Monetary history of Denmark 2005-2020, Volume 7, 2023 ([link](#)), as well as Marcus Clausen Brock and Jakob Mølgaard Heisel, Denmark is one of the most digitalised countries when it comes to payments, Danmarks Nationalbank Analysis, no. 2, February 2022 ([link](#)).

CHART 1

Digitalisation and payments timeline



Source: Danmarks Nationalbank.

## Cash payments are in decline

In Denmark, approx. 272 million cash payments were made in 2023 by citizens in physical trade and between private individuals, and the total value of these cash payments was approx. kr. 84 billion. The total value of cash payments has decreased from approx. 10 per cent of the total value of all payments in 2021 to less than 8 per cent in 2023. This is shown by figures from Danmarks Nationalbank's survey of Danish citizens' payment habits, which is described in more detail in box 1.

In physical trade, the proportion of payments made with cash was 11 per cent of the total amount of payments in 2023, see chart 2. This is at the same level as in 2021, but should be seen in the context of physical trade accounting for an increasingly smaller share of the total number of payments in society, as there is a shift towards more online trade and ever more in-app payments<sup>2</sup> on mobile phones. As a result, the gap between cash payments in society has increased.

Denmark is not the only country with a low usage of cash. The Nordic region in general has a low level of cash usage in an international context, and in Sweden and Norway, for example, the use of cash accounted for only 8 per cent and 3 per cent of payments in physical trade, respectively.<sup>3</sup> By comparison, cash was used for more than half of all physical trade in the euro area in 2021.<sup>4</sup>

The difference in cash usage between countries should be seen in the context of, among other things, different approaches to digitalisation, large geographical differences and legislation on the use of cash, see boxes 3 and 4. Although there

### BOX 1

#### Danmarks Nationalbank's survey of Danish citizens' payment habits

Every other year since 2017, Danmarks Nationalbank has conducted a survey on the payment habits and preferences of Danish citizens, including their use of cash. In 2023, the data collection was carried out by Epinion, and is based on responses from 2,737 representatively selected citizens over the age of 15.<sup>1</sup>

Respondents entered all their payments for an entire day in a payment diary. For each payment, the citizen provided certain information, including the form of payment and location, for example payment with cash in a grocery store.

In addition to the payment diary, each respondent answered a number of questions regarding their payment preferences and views on cash, for example their preferred payment solution and their views on whether stores should be obliged to accept cash.

The payment diary and other information in the survey was collected in spring 2023. The invitation to participate in the survey was sent out via digital and physical mail to ensure a representative group of respondents in terms of age, gender, education and income, and including citizens exempt from digital mail from the public sector. Citizens had the opportunity to answer the survey digitally or via a telephone interview.

<sup>1</sup> The sampling error in the survey is estimated to +/-1.9 percentage points for questions covering the entire group of respondents. The sampling error is larger on sub questions and sub population, for example, age groups.

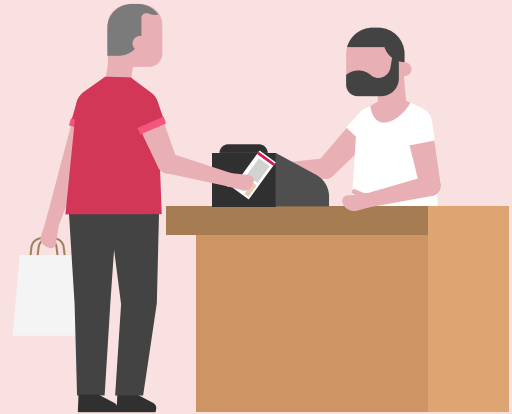
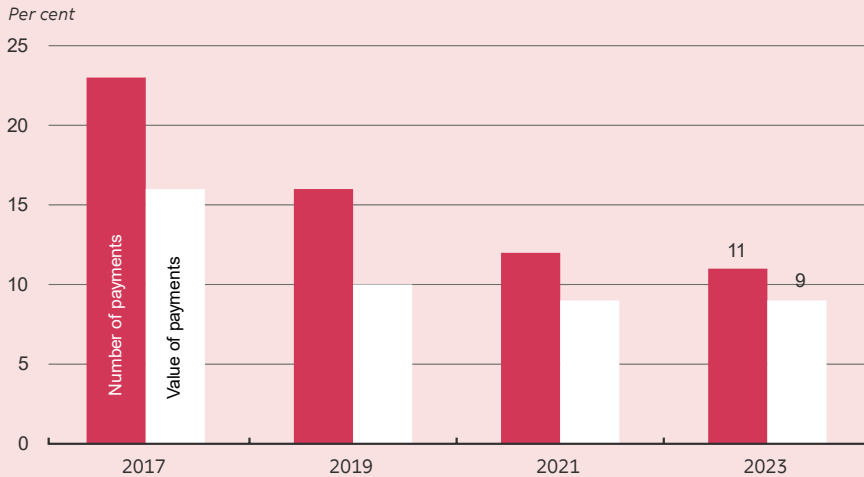
<sup>2</sup> In-app payments are purchases made using smartphone applications, e.g. to pay for train or bus fare.

<sup>3</sup> Both the Swedish Riksbank and Norwegian Norges Bank surveys ask how citizens made their last payment, whereas the Danmarks Nationalbank survey is based on a payment diary, see box 1. This means that the results are not directly comparable. See Sweden's Riksbank, Payments report 2022 ([link](#)) and Norway's Norges Bank, Retail payment services 2022 ([link](#)).

<sup>4</sup> See The European Centralbank, *Study on the payment attitudes of consumers in the euro area, 2022* ([link](#)).

CHART 2

**Fewer and fewer cash payments in physical trade**



Note: The chart shows the number of cash payments as a proportion of all payments in physical trade. Physical trade includes all physical points of sale as well as self-service environments such as at the Great Belt Fixed Link or a ticket vending machine at a railway station.

Source: Danmarks Nationalbank.

is considerable variation in the use of cash and legislation between countries, developments in the Nordic countries can give an indication of where some countries may find themselves in future. For example, less than 15 years ago in Denmark, half of all payments in physical trade were made with cash.<sup>5</sup>

**Cash usage is evenly distributed among people over 30**

Cash is hardly used at all for payments by younger people, i.e. those aged between 15 and 29. They only use cash for 6 per cent of their payments, see chart 3.<sup>6</sup> Instead, they mainly use smartphones or payment cards in stores.

On the other hand, the use of cash is evenly distributed across the rest of the population, with citizens aged 30-39 years and citizens aged over 60 being the most frequent cash users in stores. This reflects various underlying motives and characteristics of cash, see section 2.

In the group of citizens aged over 70, there has also been a shift towards fewer payments with cash in recent years.<sup>7</sup> Although age still affects citizens' payment habits, the results of the survey show that senior citizens use digital payment solutions on an equal footing with the rest of the population. Developments in recent years have also contributed to the fact that an increasingly smaller

<sup>5</sup> See Danmarks Nationalbank, Costs of Payments in Denmark, *Danmarks Nationalbank Report*, April 2012 ([link](#)).

<sup>6</sup> The Danmarks Nationalbank survey does not include children under the age of 15. Citizens under the age of 15 are generally able to use payment solutions on an equal footing with the rest of the population, including cash, payment cards without a credit facility and smartphone payments. Although there is no statutory age limit for issuing payment cards in Denmark, most banks have set a lower limit of 7 years. Payment cards for young children are often referred to as pocket money cards, and are typically a specially developed product with several restrictions that parents can monitor. Young people over the age of 13 are also able to use mobile payment solutions such as MobilePay, Apple Pay and Google Pay, if they have a payment card. Issuing payment cards to persons under the age of 15 will require parental consent.

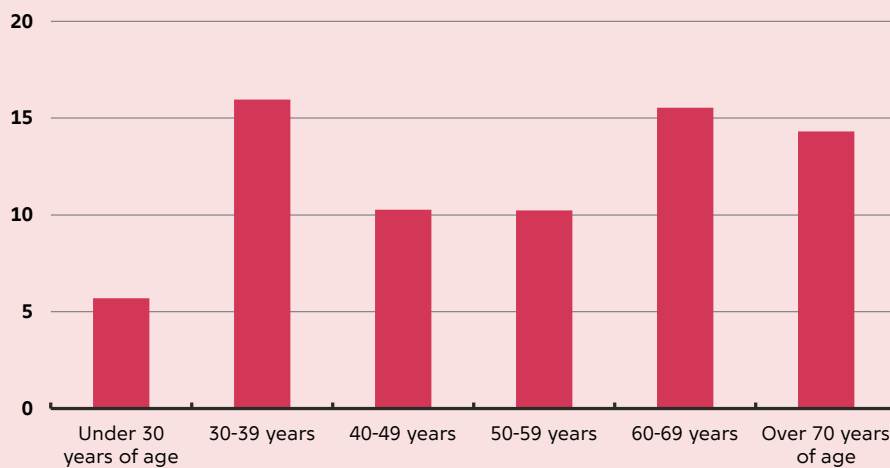
<sup>7</sup> Approx. 15 per cent of all payments in physical trade were made using cash among citizens over the age of 70 in 2023, while in 2021 and 2019 it was 19 per cent and 22 per cent, respectively. See Jakob Mølgaard Heisel, The use of cash in society, *Danmarks Nationalbank Analysis*, No. 3, March 2022 ([link](#)).

proportion of older citizens prefer using cash. This is reflected, among other things, in older citizens' preference for paying digitally: Only 7 per cent of citizens over the age of 70 say that today's digital payment solutions do not meet their needs.

CHART 3

**Cash usage for payments is evenly distributed among citizens aged 30+**

Per cent



Note: The chart shows the number of cash payments as a proportion of all payments in physical trade. Physical trade includes all physical points of sale as well as self-service environments such as at the Great Belt Fixed Link or a ticket vending machine at a railway station.

Source: Danmarks Nationalbank.

**New alternatives reduce cash payments between private individuals**

Cash usage is not only becoming rarer for payments between citizens and in stores. In 2023, 20 per cent of payments between private individuals were made using cash, compared to 30 per cent in 2019, see chart 4. Payments between private individuals include, for example, pocket money, gifts, bill sharing and payments in digital and physical marketplaces.<sup>8</sup>

Part of the decline in cash usage can be explained by the fact that more and more payments between private individuals are made via digital marketplaces, where cash cannot be used unless the buyer and seller meet physically.<sup>9</sup>

The trend towards more digital and fewer cash payments between private individuals should be seen in the light of the fact that mobile payments are often a direct alternative to cash. Although cash is still the only form of payment that is basically completely technology-free in the payment situation, for many people their mobile phones offer a good alternative to cash. This is because mobile payments have many of the same characteristics as cash when people trade with each other.

<sup>8</sup> Digital marketplaces include, for example, Facebook Marketplace or DBA, while physical marketplaces might be a jumble sale or a roadside stall.

<sup>9</sup> In previous surveys, Danmarks Nationalbank has not distinguished between payments made online and in person between private individuals. Therefore, the 2023 survey cannot be compared to previous surveys. In 2023, 37 per cent of payments where the seller and buyer met physically were made with cash.



MobilePay, for example, uses instant payments, which means that the payment is transferred instantly from payer to payee. An instant payment is also final, so the payee (as with cash) is guaranteed that the payment has been completed.

Danes' willingness to use their mobile phones influences how people behave in several ways when paying each other.

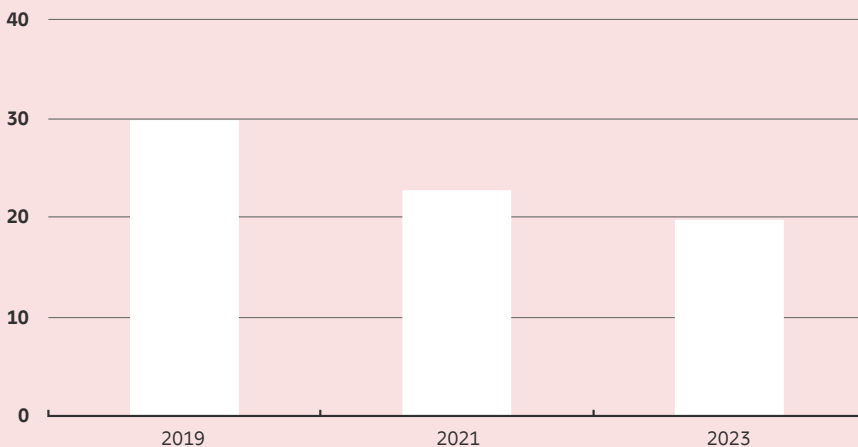
First, mobile payments have replaced a number of cash payments. Secondly, mobile payments are increasingly replacing payments between private individuals that were previously effected by means of credit transfers. Thirdly, the increase in mobile payments has led to more payments between people, for example through more frequent settlements, as the payer always has their mobile with them and thus the exact amount of money at hand.

A potential spin-off effect of the trend for more mobile payments between private individuals is that citizens have less cash on them. This helps to further reduce the use of cash elsewhere in society, for example for payment in stores.

CHART 4

**Longer between cash payments when paying other people**

Per cent



Note: The chart shows the proportion of cash payments between private individuals. Payments between private individuals include, for example, pocket money, gifts, payments at physical and digital marketplaces as well as bill sharing and splitting.

Source: Danmarks Nationalbank.

**Declining cash usage primarily driven by demand**

One reason for the general decline in cash usage is that it has become easier and more widespread to pay digitally. More alternatives to cash have emerged, including a wider range of card and mobile payment solutions.

For a solution to be suitable as a means of payment, it must be widely used by both payers and payees.<sup>10</sup> The significance of the digital alternatives for the decline in cash usage therefore varies across physical trade and between private

<sup>10</sup> See Jakob Mølgaard Heisel, Cash payments are declining, Danmarks Nationalbank Analysis, no. 16, February 2020 ([link](#)).

individuals. Mobile payment solutions like Apple Pay, Google Pay and MobilePay are good examples of solutions with different prevalence and levels of use.

Apple Pay and Google Pay can be used in the vast majority of physical stores, as payment cards and payment terminals support the possibility of contactless payments with smartphones. In addition, there is a high prevalence of mobile payment solutions among citizens, which is why the payment solutions can be a substitute for cash.

The use of MobilePay is also high among citizens, while its use in physical stores is somewhat more limited. Conversely, the widespread use of MobilePay among citizens means that it is the Danes' preferred payment solution when paying each other money. This largely explains why more payments between private individuals are now being made using mobile phone.

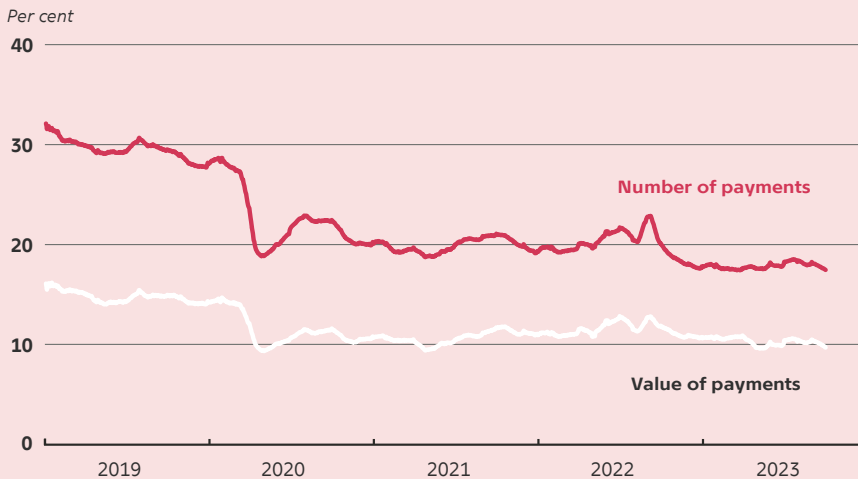
In addition to technological developments and citizens' generally positive attitude towards new payment solutions, the corona pandemic has also played a role in the transition from cash towards digital solutions.<sup>11</sup> There are many indications that the pandemic has accelerated digital development, and broken down barriers to paying digitally, for example when a citizen chooses to pay digitally for the first time by request from stores. Recent developments in the use of cash in, for example, grocery stores indicate a paradigm shift in the use of cash after the corona pandemic, with citizens holding onto their new digital payment habits. For example, the share of cash payments in grocery stores in 2023 decreased by more than a third compared to 2019, see chart 5.



**The declining use of cash thus seems to indicate that citizens are largely choosing not to use cash, even though they have the right to pay with it – and the possibility of doing so.**

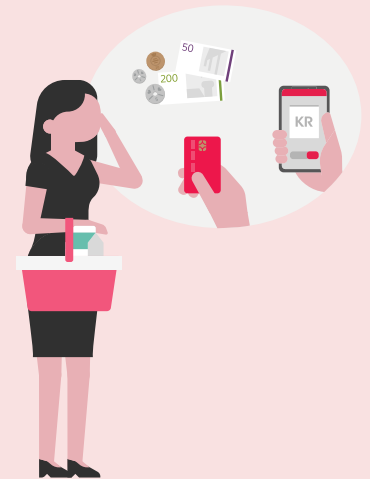
CHART 5

**Fewer cash payments in grocery stores after coronavirus pandemic**



Note: The chart shows a 28-day moving average of the number and value of cash payments as a proportion of total in-store payments.

Source: Danmarks Nationalbank, Salling Group, Coop Danmark, Rema 1000 and 7-Eleven.



<sup>11</sup> See Jakob Mølgaard Heisel, Stefan Bak Pedersen and Marianne C. Koch, Payments before, during and after the corona lockdown, *Danmarks Nationalbank Analysis*, no. 16, September 2020 ([link](#)) and see the ECB, Study on the payment attitudes of consumers in the euro area ([link](#)).

Combined with the general obligation among stores to accept cash payments, see box 3, the overall development shows that citizens are free to choose between paying with cash or digital payment solutions. The declining use of cash thus seems to indicate that citizens are choosing not to use cash, even though they have the right to pay with it – and the possibility of doing so on an equal footing with digital solutions today.

### **Few cash payments between businesses**

The number of cash payments between businesses is limited. The most commonly used forms of payment for business payments are credit transfers, payments using inpayment forms, direct debits and payment cards, while cash is usually only used for minor purchases in small shops.<sup>12</sup>

In addition, payments between businesses can also differ from payments between individuals and businesses, as payments between businesses are typically associated with slightly longer payment deadlines, where payment does not necessarily have to take place at the actual handover of the goods. Therefore, payment in cash is less expedient, which may be one of the reasons for the limited prevalence.

Businesses are also able to refuse cash payments from other businesses. Danish legislation also contains a number of provisions that limit the use of cash given the costs associated with cash handling and the risk of money laundering, undeclared work and tax evasion, see box 3.

The use of cash for payments between businesses is thus limited by the low demand for paying with cash as well as by businesses being able to – and sometimes obliged – to refuse cash.

### **Citizens, banks and stores holding less cash**

The general decline in the demand for cash is also reflected in citizens' holdings of cash for regular payments. Danmarks Nationalbank's survey shows that half of the Danish citizens have either no or very little cash (less than kr. 100) on them for day-to-day transactions.

Nevertheless, one third of Danes hold banknotes and coins that they do not use for regular payments. The majority have less than kr. 10,000 in banknotes and coins at home or in bank vaults, see chart 6. Cash being used as a store of value is therefore widespread among the population, even though cash is being used less for payments in society.

However, fewer citizens are choosing to keep large amounts of cash. For example, in 2023, less than 8 per cent of the population had savings of more than kr. 10,000 in Danish banknotes and coins, while in 2017 the figure was 14 per cent, see chart 6.<sup>13</sup> Nevertheless, Danish citizens held cash as a store of value totalling approx. kr. 31 billion, according to the Danmarks Nationalbank survey, see chart 7.

The trend towards cash being used less for savings has existed for some time, but since mid-2022 alone, approximately one in five citizens with cash savings have reduced the amount of cash they hold.<sup>14</sup> Danmarks Nationalbank's survey indicates that more than half of these citizens have used part of their savings for payments.

<sup>12</sup>See the Danish Payments Council, Report on business-to-business payments, May 2015 ([link](#)).

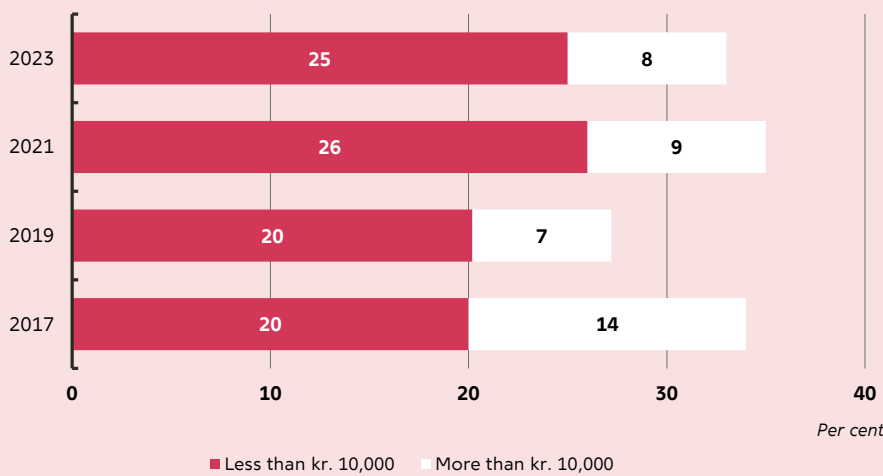
<sup>13</sup>See Danmarks Nationalbank, Danish households opt out of cash payments, December 2017 ([link](#)).

<sup>14</sup>One in seven with a cash holding has increased their savings in 2023.

In the short term, this would have led to more cash payments, and at the same time reduced the circulation of cash in society as the cash was deposited into bank accounts by either the citizens or stores that received it. At the same time, due to the increasing interest rates, people who are holding cash rather than depositing it in the bank are losing out on even more interest. This also appears to have contributed to a decline in demand for cash among citizens, see section 2.

CHART 6

**One in three citizens have cash savings**



Note: The chart shows the proportion of the total population with a cash holding (banknotes and coins) of more than and less than kr. 10,000, respectively.

Source: Danmarks Nationalbank.

The size of banks’ cash holdings has also been reduced in recent years, and today stand at approx. kr. 7 billion, see chart 7. This should be seen in the context of the lower demand for cash in society in general, which means that banks do not need to hold as much cash to meet general demand while also meeting larger unforeseen fluctuations.

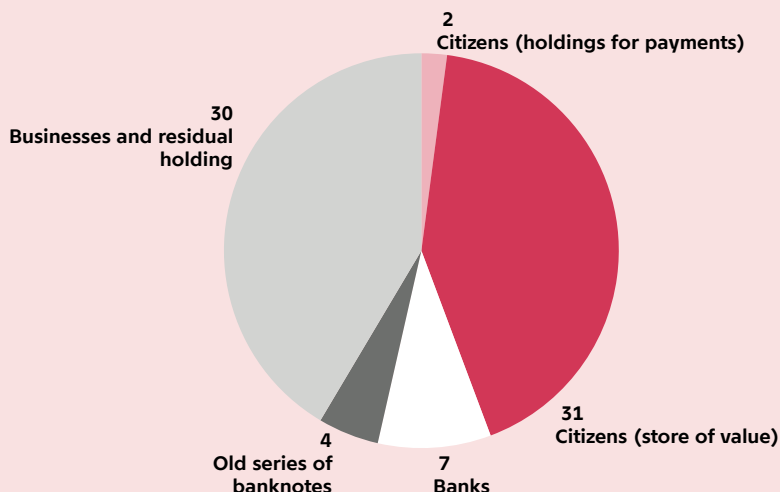
In addition to the cash which is held by citizens and Danish banks for payments and as stores of value, both Danish businesses as well as foreign citizens and companies also hold Danish cash. At the same time, as a result of its anonymity, cash is also used for payments and as a store of value which has not been reported in Danmarks Nationalbank’s survey of citizens’ payment habits.

Danmarks Nationalbank does not have information on these holdings, which account for as much as kr. 30 billion of the total cash in circulation, see chart 8. Several factors indicate that only a small part of this amount lies with Danish businesses. This reflects the fact that businesses can place and invest excess liquidity at a better rate of return than by holding the liquidity in cash. In addition, businesses only make a limited number of payments with cash, reducing the need to hold cash for regular payments. However, stores receive payments in cash from customers, which is why they need to have cash available as change.

CHART 7

**Citizens have large cash holdings**

Kr. billion



Note: The chart shows the total amount of cash in circulation broken down by the various stakeholders' cash holdings. Citizens' holdings are calculated on the basis of their responses to Danmarks Nationalbank's survey of citizens' payment habits. It is expected that citizens have reported their holding of old banknote series to only a very limited extent thus old series appears as a separate category. Old series of banknotes are registered on Danmarks Nationalbank's balance sheet while banks' cash holdings are reported to Danmarks Nationalbank. Businesses and residual holdings covers businesses' holdings of cash as a store of value and for payments, foreign holdings and cash holdings that have not been registered or reported to Danmarks Nationalbank. The value of the holdings has been calculated residually based on the total cash in circulation of approx. kr. 73 billion as at 30 April 2023 when the data was collected. Since then, total cash flow has decreased by approx. kr. 4 billion towards the end of October 2023.

Source: Danmarks Nationalbank.

**Lower demand for cash has reduced total cash in circulation**

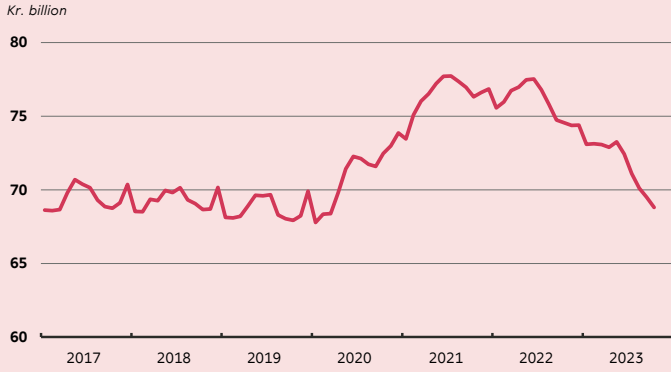
The reduction in the total amount of cash in circulation in recent years has meant that the value of banknotes and coins in circulation at the end of October 2023 was kr. 68.8 billion, which is at about the same level as in 2017, see chart 8. The reduction in the amount of cash in circulation should be seen in light of the fact that the total economy has grown by approx. 26 per cent in nominal terms since 2017, which is why cash accounts for a smaller share of the economy. The value of the cash in circulation as a share of GDP in Denmark stood at 2.6 per cent at the end of 2022. This is low in an international context, and reflects the low use of cash for, among other things, payments.

The decline in the amount of cash in circulation is primarily driven by fewer 1,000-kroner banknotes, see chart 9.<sup>15</sup> In the last two years alone, the total value of 1,000-kroner banknotes in circulation has been reduced by more than kr. 6 billion to kr. 23.0 billion today. This is mainly due to the fact that cash is used less as a store of value, even though low deposit rates at banks briefly increased the incentives for holding cash for this purpose among citizens and businesses.

<sup>15</sup> The decrease in the number of 1,000-kroner banknotes reflects the fact that cash is usually used as a store of value, while smaller banknotes are primarily used for payments. It must be expected that the 500-kroner banknote is used both for payments and as a store of value.

CHART 8

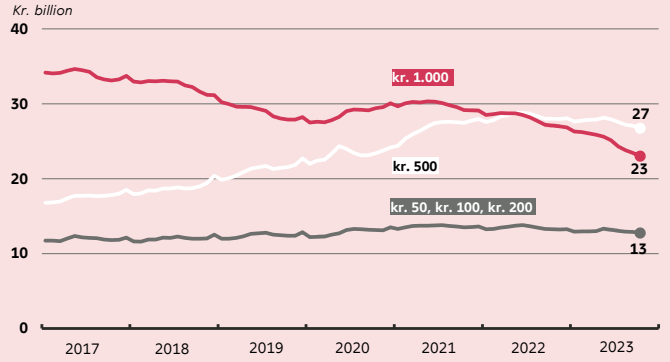
**Total value of banknotes and coins in circulation in Denmark**



Note: The chart shows the total value of the banknotes and coins in circulation at current prices (nominal). Cash in circulation includes all valid Danish banknotes and coins (excluding Faroese banknotes).  
Source: Danmarks Nationalbank.

CHART 9

**1,000-krone banknote driving the decline in banknotes in circulation**



Note: The chart shows the total value of banknotes in circulation by banknote denomination in Danish kroner (excluding Faroese banknotes).  
Source: Danmarks Nationalbank.

## 02 Special characteristics of cash

Cash has a number of special characteristics, see box 2, which each in their own way influence how Danes relate to cash. The special characteristics of cash are linked in particular to the fact that cash is a physical means of payment which, among other things, makes it easy and simple to understand, for example for budget control.

In addition, cash payments do not require an underlying infrastructure in the payment situation. Moreover, it allows citizens and businesses to make anonymous payments with cash. In addition to this, cash is so-called bearer certificates, i.e. it can be used by anyone who is in possession of them without leaving digital traces.

In order to better understand the characteristics citizens particularly value about cash, Danmarks Nationalbank has asked citizens whether and why it might be problematic for them if society at some point became cashless, for example in 10 years.

More than one in three citizens said that it would be a problem for them if society were to become cashless. Among citizens, there is considerable variation between which characteristics that are particularly important for their relationship to cash. Nevertheless, the responses indicate that cash is more than simply a means of payment for citizens: Very few people seem to be able to pay only with cash, while the preference for using cash as an anonymous means of payments has a bigger influence on citizens' attitudes towards a cashless society, see chart 10.



**More than one in three citizens say that it would be a problem for them if society were to become cashless.**

### BOX 2

#### Characteristics of cash

Cash has a number of special characteristics that distinguish it from digital money.<sup>1</sup>

##### **Guaranteed payment**

When cash is used, the payee can be certain that payment is effected.

##### **Widely accepted means of payment**

Cash can be used for payment purposes throughout society.

##### **No technical infrastructure required**

Cash does not require a underlying infrastructure in the payment situation.

##### **Anonymous**

Cash is so-called bearer certificates, i.e. it can be used by anyone who is possession of them without leaving digital traces.

##### **Tangible and simple**

Cash is physical, making it simple and easy to understand.

##### **Budget control**

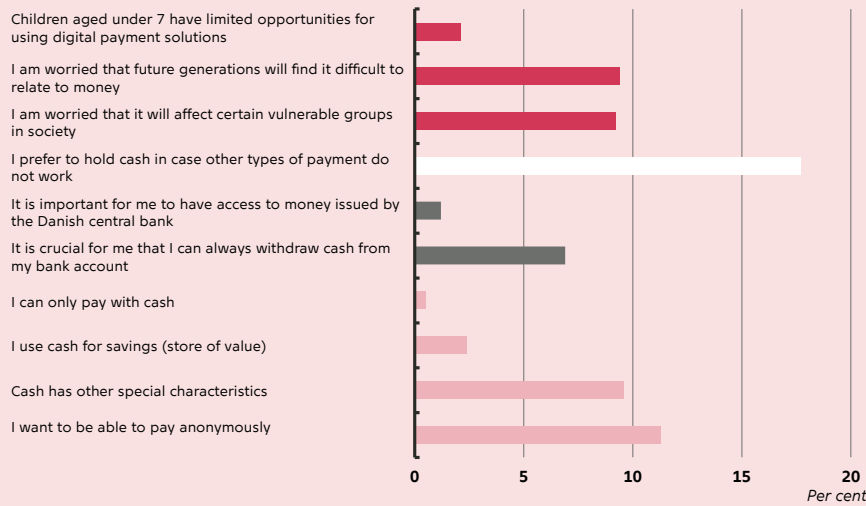
Cash can be used to limit one's spending, as no more cash can be used than you have at your disposal.

<sup>1</sup> Danish Payments Council, *Report on the role of cash in society*, June 2016 ([link](#)).

CHART 10

Special characteristics influence Danes' relationship to cash

Why would it be a problem for you if society became cashless, for example in 10 years' time?



Note: 37 per cent of citizens say that it would be problematic for them if society became cashless. The chart shows citizens' two main reasons for this (proportion of total population).  
Source: Danmarks Nationalbank.

Further, 10 per cent of the population state that cash has other special characteristics that would make it a problem for them if society became cashless. This might be, for example, the tangibility of cash or its visual and tactile characteristics.

A large proportion of citizens who would find it problematic if society became cashless at some point express their concern for others than themselves, for example children, future generations or vulnerable groups in society, see chart 10. The study shows that 30 to 50-year-olds are usually worried about future generations' relationship with money, while older generations are often concerned about the most vulnerable citizens in society.

**The development suggests that more people want to be cashless**

The development in the use of cash as a means of payment may indicate that more people will live cashless in the future. Three factors in particular points in this direction.

First, if the youngest generations maintain their current payment habits (i.e. virtually no use of cash) as they become older, there will be a decline in the overall use of cash.

Secondly, it is to be expected that the development of digital payment solutions will continue, and that this will encourage more citizens to choose these and thus use cash to a lesser extent as a means of payment in stores and between each other.

Thirdly, the increasing prevalence of online shopping, automated payments such as Brobizz and number plate payment at bridges and ferries, car park charges and the growing number of self-service options in cafes and restaurants will reduce the number of locations where citizens can pay with cash.



### Cash as a means of payment in Denmark

Most citizens rarely use cash for payments, either in stores or between each other.<sup>16</sup> This primarily reflects their opting out of cash as a means of payment while digital payment solutions becoming more widespread.

However, one in eight citizens still prefer cash as a means of payment in stores, while one in five citizens prefer to pay with cash between private individuals. The group who prefers to pay with cash is represented from the entire population, although with a relatively lower proportion among the youngest age groups, women and people with a higher education.

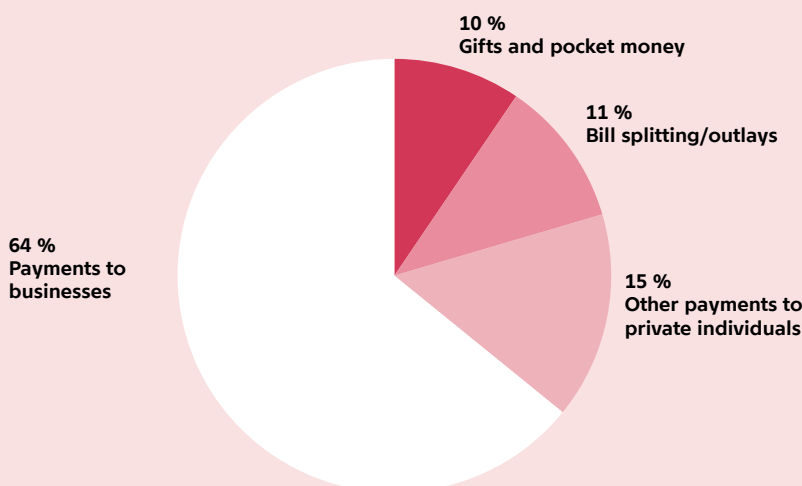
This group's preference for paying with cash is attributed to the characteristics of cash as a means of payment, which are particularly valued by these citizens. This includes, among other things, that cash is easy to use and widely accepted, that cash payments can be made anonymously, and that they consider cash as an emergency means of payment if other payment solutions do not work.

The fact that cash is a physical product also seems to influence citizens' preferences for using cash for, for example, pocket money and monetary gifts. This may be due to the fact that cash can easily be transferred, and that citizens' perception of what constitutes money is linked to the physical nature of cash. This means that many Danes give cash as a gift, even if they do not use cash themselves.

The widespread use of cash between private individuals also means that a third of the total value of cash payments today is made between private individuals in the form of, for example, gifts, pocket money, bill sharing and splitting etc., see chart 11.

CHART 11

### Payments between private individuals account for one third of the total value of cash payments



Note: The chart shows the breakdown of the total value of cash payments from Danmarks Nationalbank's latest survey of citizens' payment habits.

Source: Danmarks Nationalbank.

<sup>16</sup> According to Danmarks Nationalbank's survey, 46 per cent of the population rarely or never uses cash.

**Large variation in cash usage between stores**

Although the vast majority of stores in physical trade are required to accept cash during daylight hours, see box 3, the use of cash for payments varies from sector to sector and from shop to shop. While some stores rarely receive cash, it can be a frequently used means of payment in others.

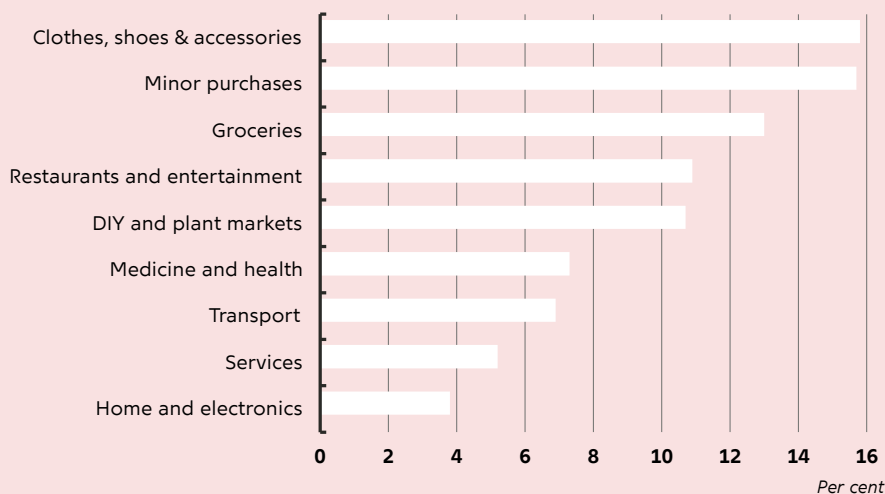
It is especially when buying groceries, making small purchases (for example in kiosks) as well as when shopping for clothes, shoes and accessories that cash is used in physical trade, see chart 12. In 2023, more than one in eight payments for these items were made with cash.

By comparison, cash was used less frequently for purchases within the remaining sectors. For example, 7 per cent of payments in the categories 'Medicine and health' and 'Transport' were made with cash. In the latter category, the 'Rejsekort' travel card may well explain the reduced use of cash for transport purposes.

CHART 12

**Significant variation in the number of cash payments across sectors**

*Proportion of payments in physical trade in selected sectors made with cash*



Note: In 2023, 11 per cent of all payments in physical trade were made with cash.  
Source: Danmarks Nationalbank.

More than half of all cash payments in physical trade in 2023 were made in grocery stores, see chart 13. This reflects the fact that even though only 13 per cent of payments in grocery stores were made with cash, this is where the vast majority of cash payments take place, according to Danmarks Nationalbank's survey.

The use of cash as a means of payment in physical trade also varies depending on where in Denmark you live. Citizens living in commuter municipalities and in rural areas use cash more often than citizens living in large cities and the capital region, see chart 14.

The use of cash indicates that some stores in certain geographical areas receive relatively few cash payments. These stores may find that the time and resources spent on handling cash is out of proportion with the limited use of cash. This can also be the case for stores which – at sector level – appear to have a relatively high number of cash payments, such as clothes stores as well as restaurants, cafés and bars in both rural districts and metropolitan areas.

It is probably in this light that some stores encourage customers to pay digitally, even though citizens have the right and are able to pay with cash. More than one in ten citizens have shopped in stores which have been unwilling to accept cash. This seems to be largely driven by citizens’ perceptions that stores prefer digital alternatives, by the increasing prevalence of self-service checkouts as well as by shops being increasingly unable to give change when handed high-denomination banknotes.

According to the Danmarks Nationalbank survey, approx. 90 per cent of all payments made with cash had a transaction value of kr. 0-500. At the same time, approx. one in four citizens said that they had used a 1,000-krone banknote at least once within the past year to make a payment in a store. This place demands on stores in terms of how much change they need to hold, as they are required to give change for all purchases even when costumers pay with high denominated notes.

According to the Danish Payments Act (*Lov om betalinger*), stores are obliged to accept cash, see box 3. In recent years, the Danish Consumer Ombudsman has received an increasing number of complaints about stores which, for various reasons, do not want to accept cash, for example restaurants, transport companies and municipalities.<sup>17</sup> It has also led to several businesses being reported to the police for violating the cash obligation.<sup>18</sup>

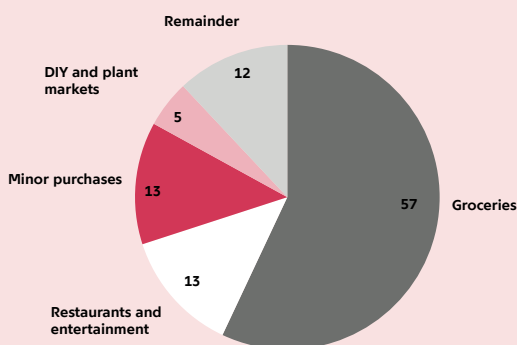


**More than half of all cash payments in physical trade in 2023 were made in grocery stores.**

CHART 13

**More than half of all cash payments in physical trade were made in grocery stores**

Breakdown of all payments made with cash by sector (in per cent)

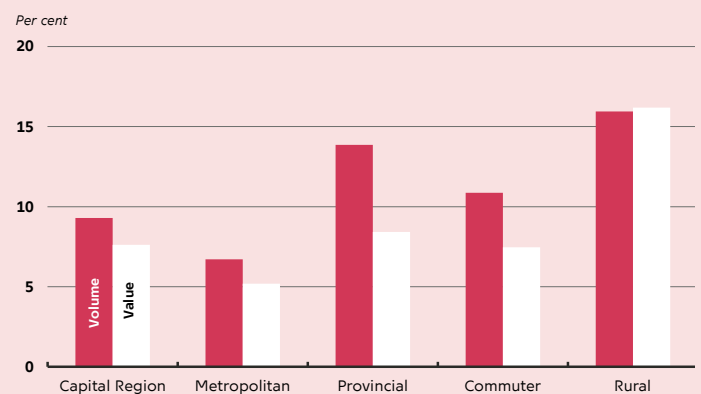


Note: The chart shows the distribution of the total number of payments in physical trade made with cash by sector.  
Source: Danmarks Nationalbank.

CHART 14

**Payments with cash are made to a lesser extent by citizens living in larger cities**

Proportion of payments in physical trade (in per cent)



Note: The chart shows the share of the total number of payments in physical trade that were made with cash by the respondents municipality of residence.  
Source: Danmarks Nationalbank.

<sup>17</sup>See Danish Consumer Ombudsman, Annual Report 2022 ([link](#)).

<sup>18</sup> See the Consumer Ombudsman: Press release 17 November 2022 (only in Danish) ([link](#)) and 16 June 2023 (only in Danish) ([link](#)).

### BOX 3

#### Legislation regulating the use of cash in Denmark

Danish banknotes and coins are legal tender in Denmark. This means that both citizens and businesses can use cash for payments. However, there are a few specific statutory provisions that restrict the use of Danish banknotes and coins by the payer and the payee.

In Denmark, the legislation includes a so-called cash obligation. The cash obligation was introduced with the Danish Payment Card Act in 1984 when the Dankort, that national cardscheme, was introduced. Under the rule, retailers could generally not refuse to accept cash. This rule was to ensure competition for the Dankort and that cash could still be used for payment in stores despite the prevalence of card payments.<sup>1</sup>

Today, the cash obligation means that payees in physical trade are obliged to accept cash, unless they are covered by the exceptions in the Danish Payments Act.<sup>2</sup> The exceptions cover, among other things, remote trade, including internet trade, and self-service environments, for example unstaffed petrol stations, and temporary events such as markets and festivals. In addition, businesses are also exempt from receiving cash payments from other businesses.

Moreover, staffed stores are not required to accept cash between 22:00 and 06:00. In areas where there is an increased risk of robbery, the obligation to accept cash does not apply from 20:00.<sup>3</sup> However, the Minister for Industry, Business and Financial Affairs can regulate to ensure that certain types of payees, for example 24-hour pharmacies are always obliged to accept cash.

Danish legislation also contains a number of provisions that limit the use of cash given the costs associated with cash handling and the risk of money laundering, undeclared work and tax evasion.

The rules of the Danish Anti-Money Laundering Act (*Hvidvaskloven*) prohibit retailers from receiving cash payments exceeding kr. 20,000. This applies whether the payment is made as one or more payments that appear to be interconnected.<sup>4</sup>

The use of cash is also restricted in the Danish Coinage Act (*Møntloven*), as no payees are obliged to accept more than 25 coins of any denomination in connection with a single payment.<sup>5</sup>

The Danish Tax Assessment Act (*Ligningsloven*) also contains additional special rules about tax deductions for retailers related to expenses associated with purchases of goods and services for ensuring digital identification of payees and payers. For cash payments in excess of kr. 8,000, the payment must be reported to the Danish Tax Agency, whether the payment is made at once or as several payments to the same payee.<sup>6</sup>

The use of cash as a means of payment is also limited in terms of citizens' and businesses' dealings with public authorities. The digitalisation of the public sector has led to requirements for on digital payments in several areas.

1 See Danmarks Nationalbank, *Monetary history of Denmark 2005-2020*, Volume 7, 2023 ([link](#)).

2 See the Danish Payments Act, section 81, cf. LBKG 2023-01-18 no. 53 (only in Danish) ([link](#)).

3 See the Danish Ministry of Industry, Business and Financial Affairs, announcement of postcodes at special risk of robbery (only in Danish) ([link](#)).

4 See the Danish Anti-Money Laundering Act, section 5, cf. LBK no. 316 of 11/03/2022 (only in Danish) ([link](#)).

5 See the Danish Coinage Act, section 4(4), cf. LBKG 2018-12-12 no. 1803 (only in Danish) ([link](#)).

6 See the Danish Tax Assessment Act, section 8Y, cf. LBKG 2023-01-13 no. 42 (only in Danish) ([link](#)).

***Adjusting the cash obligation can be considered politically***

Stores in Denmark are generally required to accept cash, see box 3. As cash usage decreases, and more and more shops rarely have customers who want to pay with cash, it may make sense to ease the stores' obligation to accept cash to support secure and efficient payments in society.

This should be seen in the context of stores having (partially) fixed costs for handling cash, including having change available, ensuring secure cash storage and for depositing cash. As there are fewer cash payments to cover these costs, each individual cash transaction become a less efficient payment method for the store.

In principle, easing the cash obligation can happen in several ways – for example by making it voluntary for some or all stores whether to accept cash or by reducing the number of hours that stores are obliged to accept cash.

Easing the cash obligation, possibly only in some sectors, does not necessarily mean that cash disappears from the sectors in question. If accepting cash becomes voluntary for some stores, cash payments may become a competitive parameter between stores. In addition, it is to be expected that the stores will continue to accept cash in those parts of physical trade where cash payments are still widespread, for example for minor purchases in kiosks, in order to retain customers.

Any easing in the stores' obligation to accept cash is a political decision, where considerations regarding secure and efficient payments must take into account the fact that part of the population finds it difficult to use digital payment solutions and can thus only pay with cash.

At the beginning of 2023, the Minister for Industry, Business and Financial Affairs expressed that the government on an ongoing assesses the pros and cons of the current cash obligation and if the obligation is to be adjusted the consumers should still be guaranteed that businesses which primarily sell essential goods and services, such as grocery stores and pharmacies, will continue to be obliged to accept cash payments.<sup>19</sup>

Almost four in ten citizens want all stores to be obliged to accept cash, see chart 15. It is mainly citizens who feel that cash possesses certain characteristics who want to retain the obligation for stores to accept cash. On the other hand, a quarter of the population states that the cash obligation can be completely dispensed with, while the rest of the population believes that it can be eased from its present scope.<sup>20</sup>

It is to be expected that the cash obligation in Denmark contributes to a higher cash usage in Denmark than in Norway and Sweden, which do not have a similar cash obligation, see box 4.<sup>21</sup> An easing of the cash obligation may therefore, depending on its scope, lead to fewer cash payments, which may negatively impact the cash infrastructure and thus further limit access to cash.



**As cash usage decreases, and more and more shops thereby rarely have customers who want to pay with cash, it may make sense to ease the stores' obligation to accept cash in order to support secure and efficient payments in society.**

<sup>19</sup> Fewer cash payments are made in parts of the healthcare sector, which is why regulation can help ensure that these key societal functions will also accept cash in future.

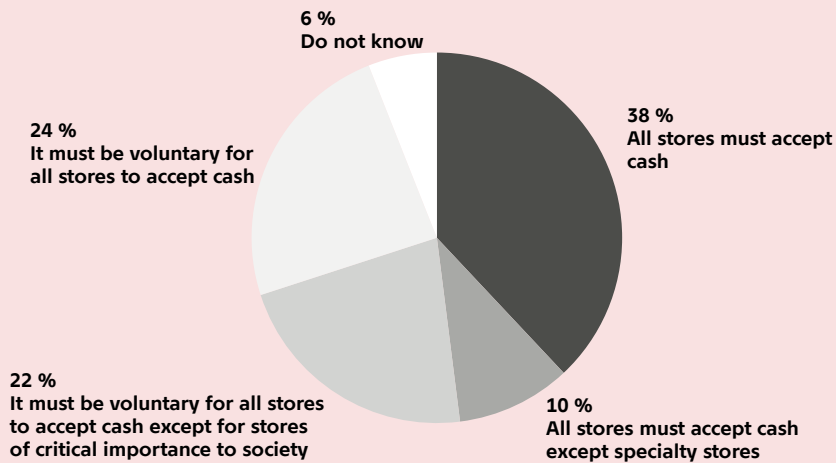
<sup>20</sup> The question in the Danmarks Nationalbank survey only looks at whether stores can be completely exempted from accepting cash – not whether the period during which stores are obliged to accept cash can be narrowed down (or whether stores can say no to high-denomination banknotes).

<sup>21</sup> A decline cash usage has led to increasing concerns about the usability of cash in several countries, for example in Norway and Sweden. And it has resulted in proposals for new legislation in both countries to support the possibility of paying with cash in stores which play a critical role for society.

CHART 15

### Danish citizens view on the cash obligation

To what extent do you think businesses should be allowed to refuse cash payments?



Source: Danmarks Nationalbank.

BOX 4

### Rules on use of cash in neighbouring countries

#### Sweden

In Sweden, Swedish cash issued by the Swedish central bank, Riksbanken, is legal tender and can generally be used as a means of payment anywhere in the country.<sup>1</sup> By way of exception, however, a statutory principle of contractual freedom means that shops and restaurants can refuse to accept cash, coins or certain types of banknotes. In addition, certain sectors, such as the public health service, may be obliged to accept cash.

#### Norway

Norwegian cash issued by the Norwegian central bank, Norges Bank, is legal tender in Norway. Norwegian law spans several contradictory rules, and as a result it is unclear whether there is a cash obligation. At the end of 2022, the Norwegian government submitted a legislative proposal in public consultation regarding consumers' access to pay with cash and thereby the possibility of introducing a cash obligation. If the proposal is passed in its current form, all staffed businesses will be obliged to accept cash payments.<sup>2</sup>

#### Euro area

In 2010, the European Commission presented a recommendation setting out the framework for cash (euro banknotes and coins) as legal tender in the euro area.<sup>3</sup> This means, among other things, that cash is legal tender unless otherwise agreed. However, businesses are permitted to reject cash payments on the basis of the 'good faith principle' if, for example, money laundering is suspected. In addition, cash payments must always be accepted at face value, and cash must enable a bearer to repay debts.

<sup>1</sup> See the Sveriges Riksbank Act ([link](#)).

<sup>2</sup> See the Norwegian Government's consultation paper (only in Norwegian) ([link](#)) and Norges Bank's consultation response (only in Norwegian) ([link](#)).

<sup>3</sup> See the European Commission Recommendation of 22 March 2010 ([link](#)).

### **The most vulnerable citizens need access to cash**

There are a number of citizens in Denmark who are digitally challenged to a greater or lesser extent.<sup>22</sup> However, for various reasons, only a small proportion of these citizens find it difficult to manage and use digital payment solutions. This reflects the fact that, for many citizens, payments with, for example, a payment card, are simpler than handling digital communication with the public sector. Thus, approximately 5 per cent of citizens in Denmark are exempt from Digital Post<sup>23</sup>, while less than 1 per cent of the population over the age of 15 do not have a physical payment card.

Although citizens who are exempt from Digital Post make more cash payments than the rest of the population, these citizens also make payments with digital solutions, for example with their mobile phones, when paying other private individuals.

In the Danmarks Nationalbank survey of Danish citizens' payment habits, less than 1 per cent of citizens say that it would be problematic for them if there is no cash in the future, as they can only use cash as a means of payment.

The group of citizens dependent on cash includes individuals with physical or cognitive impairments. For instance, citizens with cognitive impairments can find that it is impossible to remember a PIN code. At the same time, the physicality of cash can make it easier for citizens unable to use current digital payment solutions to manage their own finances.

Citizens' actual payment habits as well as the broad anchoring of public and digital services in Denmark therefore suggest that only a very limited part of the population is unable to use digital payment solutions.<sup>24</sup>

However, it is not only the use of cash, but also the access to cash which appears to have been reduced as the cash infrastructure adapts to a more digitalised society, see section 3. Therefore, public initiatives have also been taken in Denmark to improve access to cash for the most digitally vulnerable citizens, see box 5. At the same time, implementation of the European Accessibility Act in 2025 will improve access to, among other things, ATMs for the visually impaired individuals.<sup>25</sup>

However, it is not just a question of access to physical money, i.e. cash. Access to a basic payment account, and thus digital money, is also a prerequisite for succeeding in a digital society. This is ensured by legislation today, and it is important that banks continue to ensure that access to both physical and digital money is maintained.<sup>26</sup> Most recently, the Ministry of Industry, Business and Financial Affairs, together with Finance Denmark, Local Government Denmark (KL) and organizations representing vulnerable groups entered into an agreement to ensure access to a bank account for homeless and other vulnerable citizens.<sup>27</sup>

In the slightly longer term, new innovative solutions are also likely to reduce dependence on cash for some of the citizens who today can only use cash as a means of payment. There are already examples of payment solutions today that provide increased usability for digitally challenged and vulnerable citizens, for

<sup>22</sup> Digitally challenged citizens find it difficult, for example, to use public digital solutions.

<sup>23</sup> See Danish Agency for Digital Government, Statistics on Digital Post, 2023 (only in Danish) ([link](#)).

<sup>24</sup> About 95 per cent of the population uses public digital solutions and uses online or mobile banking.

See IT-anvendelse i befolkningen 2022, Statistics Denmark (only in Danish) ([link](#)).

<sup>25</sup> See Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services ([link](#)).

<sup>26</sup> Danish citizens over the age of 18 are covered by the Danish Payments Act, which means that everyone must have a NemKonto account. Payments from the public authorities, such as the old-age state pension, other social benefits or tax refunds, can only be executed digitally.

<sup>27</sup> See Ministry of Industry, Business and Financial Affairs, Ny aftale sikrer adgang til bankkonto for hjemløse og udsatte borgere (only in Danish) ([link](#)).



**Less than 1 per cent of citizens say that it would be problematic for them if there is no cash in the future, as they can only use cash as a means of payment.**



**Some citizens will continue to rely on cash or other means of payment with similar characteristics in an increasingly digitalised society.**

example 'voice-over' functionalities<sup>28</sup> in the mobile (Apple Pay) and bearer cards<sup>29</sup> issued by e.g. Danske Bank.

However, some citizens will continue to rely on cash or other means of payment with similar characteristics in an increasingly digitalised society. It is therefore important that this group of citizens has access to secure and efficient means of payment, also in future.

## BOX 5

### Public initiatives to ensure access to cash for the most vulnerable citizens

In 2021, the Danish Government established a working group with Local Government Denmark (KL), Finance Denmark, Rådet for Socialt Udsatte (the council for socially marginalised persons) and other key stakeholders with socially vulnerable citizens and their access to cash. In 2023 the working group is planned to report on developments in the area and the work to disseminate solutions.

Denmark's largest municipalities are working in parallel to find local solutions to facilitate access to cash for the most socially vulnerable citizens.

The City of Copenhagen has identified several solutions that can facilitate access to cash for vulnerable groups, including the establishment of municipal cash services. The City of Copenhagen has assessed that several of the solutions require new legislation, which is why the municipality is currently working on a solution based on bearer cards.

The City of Aarhus has looked at social requirements in the municipal banking agreements, for example on access to cash for vulnerable people and a pilot project at one of the municipality's social institutions, where the citizen transfers money to an institutional account, after which an employee withdraws the desired amount in cash.

The Municipality of Odense cooperates with a local bank branch, where a citizen can physically show up at the branch, and if the customer can identify himself or herself or is recognised, then the desired amount of money is transferred from the customer's account to a universal account, after which a bank employee withdraws cash from the bank branch's ATM.

### Cash as a physical store of value

Cash can be used by citizens and businesses as a physical store of value. Unlike other physical stores of value such as gold, cash is also a widely accepted means of payment. This dynamic means that some of the citizens who prefer cash for payments also prefer to use cash as a store of value. Thus, 33 per cent of Danes have savings in banknotes and coins, of which the vast majority have less than kr. 10,000, see section 1.

In order to gain a deeper insight into what citizens particularly value about cash as a store of value, Danmarks Nationalbank has asked citizens why they have or have had savings in cash.

According to Danmarks Nationalbank's survey, almost one in five citizens today hold cash in the event of critical situations arising in society. However, there is nothing in particular to suggest that Danes in general have had an extraordinary desire to withdraw cash as a result of major societal events, including the war in Ukraine or the corona pandemic.

<sup>28</sup> Voice-Over provides audible notifications of what is displayed on the screen, such as when you need to make a purchase.

<sup>29</sup> Danske Bank has developed a bearer card called Kontantkort, which is a non-personal payment card. The card can be lent to others and is not linked to a personal account. The card has a generic PIN code and can be used for payments in physical trade and for making cash withdrawals. The solution has been developed, for example, for vulnerable and elderly people, and is also part of Danske Bank's collaboration with the homeless organisation *Hus Forbi*.



In addition, anonymity is one of the main reasons why citizens choose cash as a store of value. Hence, 12 per cent of the population uses cash as a store of value, which is in line with the level from 2021.<sup>30</sup> The anonymous nature of cash ensures that citizens can hold cash without it being directly traceable and without the involvement of third parties.

Few citizens state that they have cash savings due to the negative bank deposit rates up until the end of 2022. More recently, higher deposit rates have reduced the incentive to use cash as a store of value, which has contributed to more people significantly reducing their cash holdings, see section 1.<sup>31</sup>

Finally, the Danmarks Nationalbank survey indicates that higher inflation in recent years has meant that some citizens have reduced their holdings of cash. It is particularly younger citizens who have significantly changed the amount of cash they hold in the past year.

Whatever the reasons for holding cash, it is important to bear in mind that using cash as a store of value can pose a security risk, for example because cash is usually not insured against either theft or fire. In addition, larger holdings of cash are often associated with storage costs, including safes or safe deposit boxes.

In order for citizens and businesses to be able to pay with cash, they need to be able to hold cash for future payments. Cash must therefore be able to function as a store of value for this purpose. However, this does not mean that cash should support general asset placement, as it does not play an important role in safe and efficient payments. The total amount of cash in circulation should therefore be more closely linked to the use of cash for payments.

### **The anonymity of cash**

Cash can be used for payments and stored without leaving digital traces. Preferences for cash payments and savings may therefore be motivated by a desire for privacy. However, the anonymity of cash has no bearing on whether payments in Denmark are secure and efficient. Danmarks Nationalbank thus does not see the anonymity of cash as a separate positive value, but acknowledges that some citizens attach value to it.

For Danish citizens, the anonymity of cash is one of its most important characteristics. According to Danmarks Nationalbank's survey, 11 per cent of the population say that it would be problematic if society one day became cashless, as cash supports anonymous payments, see chart 10.<sup>32</sup>

It is often the same citizens who prefer cash payments and who also have a clear preference for using cash as a store of value. For many of these citizens, it stems from the anonymity of cash. More than one in 10 citizens, for example, state that the anonymity of cash is one of the main reasons why they have savings in cash.

The anonymity of cash may also contribute to the fact that 9 per cent of the population has received remuneration for work in cash.

Danmarks Nationalbank's survey indicates that especially younger men, persons with a vocational education and citizens with the lowest incomes have received

<sup>30</sup> See Danmarks Nationalbank, *The use of cash in society*, *Danmarks Nationalbank Analysis*, no. 3, 2022, ([link](#)).

<sup>31</sup> Cash was attractive to some citizens when the banks introduced negative deposit rates in 2021. In particular, senior citizens and citizens who used cash extensively to make payments withdrew larger amounts of cash.

<sup>32</sup> 15 per cent of Danish men believe that it would be problematic if society one day became cashless, as cash supports anonymity. The same is true for 8 per cent of women in the study.

cash remuneration for work to a greater extent than others. This cash is subsequently used in physical trade.<sup>33</sup>

However, the anonymity that cash provides also means that it can be used for illegal activities such as money laundering, undeclared work or tax evasion. This is supported by the fact that citizens who have paid for undeclared work in cash have a preference for anonymity.

11 per cent of the population have paid for undeclared work in cash. The demand for undeclared work appears to be broadly rooted across the population and cannot immediately be isolated in terms of gender, income, geography or education.<sup>34</sup> However, a clear trend seems to be that primarily citizens aged 25-45 pay for undeclared work in cash to a greater extent than elderly people.

### **Cash is only a supplementary payment contingency measure**

Many citizens attach great importance to cash as a contingency measure if other solutions fail. This is connected with the physical and analogue nature of cash, and cash payments can thus be made without contact with underlying digital systems.

Just under 2 in 3 citizens answer “cash as an alternative payment solution if other payment solutions fail” when asked about the most important advantages of cash in society today.<sup>35</sup> In addition, almost one in five respond that they find it problematic to do without cash at some point in the future, as they regard cash as a contingency measure if other payment solutions fail, see chart 10.

A prerequisite for being able to pay with cash is that citizens have cash on hand or have access to cash. However, Danish citizens generally carry very little cash for everyday transactions, and only a small proportion of the population store cash at home. Most citizens will therefore need to withdraw cash if they wish to make a cash payment, for example, in a disruption scenario.

However, in a situation in which card and mobile payments do not work citizens cannot necessarily use ATMs, which are the primary point of access to cash in Denmark, see section 3. ATM withdrawals typically require that the payment cards and the accompanying digital infrastructure work are functioning.<sup>36</sup> In addition, in several cases, payment with cash in stores is linked to the digital payments infrastructure, including closed cash register systems. Furthermore, the stores often have little cash in their cash registers, which means that a sudden and large increase in the use of cash in the retail sector may lead to a shortage of change.

If the digital payments infrastructure is disrupted in a larger area, for example in all or large parts of Denmark and for an extended period of time, it is uncertain whether the overall cash infrastructure will be able to support payments with cash, even if ATMs could handle withdrawals independently of the digital payments infrastructure. The ATM capacity is not likely to be sufficient if most citizens want to withdraw large amounts of cash at the same time. Especially in densely populated areas, there will be a great risk of long queues forming at the

<sup>33</sup> There is a clear correlation between the use of large banknotes for payments and cash remuneration for work. 43 per cent of the citizens who have received cash remuneration for work have paid at least once with a 1,000-krone banknote in the past year against 20 per cent among the rest of the population.

<sup>34</sup> The Rockwool Foundation has conducted a study on undeclared work with similar results, see (only in Danish) ([link](#)).

<sup>35</sup> According to figures from Danmarks Nationalbank's survey, 1 in 4 Danes have experienced in the past year that a physical store has not been able to accept a card payment for technical reasons. Danmarks Nationalbank's oversight of the retail payments infrastructure has not identified or observed key events that can explain this, and the problems experienced by the citizens must be due to local and temporary disruptions in individual stores.

<sup>36</sup> Depending on the type of failure, it may, in some cases, be possible to withdraw cash from an ATM operated by the card-issuing bank, as long as the ATM is supplied with power, see Offline card payments as a payment contingency measure, *Danmarks Nationalbank Analysis*, no. 17, 2023 ([link](#)).

ATMs. The cash infrastructure is consequently not expected to be able to meet the payment demand in physical trade in such a situation.<sup>37</sup> In addition, cash management companies, banks etc. probably do not have the capacity to serve the market in a situation with unexpectedly high demand.<sup>38</sup>

Cash can act as a supplementary contingency measure for the individual citizen, but, in practice, it is not considered to be an effective payment contingency measure at a societal level.

Significant investments are required if cash is to become an independent contingency measure in situations in which the digital payment solutions are disrupted or do not function normally. This involves a number of requirements such as crisis management planning, investment in larger cash reserves in businesses, households, the financial sector and Danmarks Nationalbank. Similarly, there should be additional capacity within the cash management companies to transport cash to and from stores, banks, ATMs etc. It will also require both the development and implementation of offline functionality in ATMs as well as an increase in the number of ATMs, especially in large cities.

A cash contingency measure is thus not considered to be commensurate with the gains, given that there are favourable conditions for Danish citizens to make offline payments with their payment cards, even if the payment systems are disrupted. Danmarks Nationalbank has assessed offline payments with payment cards and evaluates that the solution can constitute a national payment contingency measure that covers society as a whole.<sup>39</sup>

The assessment showed, among other things, that the offline functionality in payment cards issued by Danish banks enables the vast majority of citizens to maintain a basic level of spending for approx. 10 days with a payment card, provided that spending is adjusted to essential needs.

Although cash is not a societal payment contingency measure, and is not necessary for citizens to maintain their spending on basic necessities during periods in which card or mobile payments have failed, cash can nevertheless constitute a supplement or an alternative for those who wish to use it as a means of payment.

However, citizens who prefer or want to pay in cash in a disruption situation, should be in possession of cash before the disruption occurs. However, this must be weighed against the fact from a security perspective that it is not necessarily advisable to have large amounts of cash lying around. In addition, a cash holding as a payment contingency measure should preferably be in small denominations, to avoid being dependent on the store being able to give back change.

### Cash as central bank currency

Digital bank deposits are money on an equal footing with cash, i.e. banknotes and coins.<sup>40</sup> A common feature for all types of money is that they have a number of general characteristics that are crucial to establish trust in them.

Money must first and foremost act as a widespread and generally accepted means of payment that individuals and businesses can use to buy goods and services. It also means that they must be divisible so that they can be used to pay



**In practice, cash is not an effective payment contingency measure at a societal level.**

<sup>37</sup> Cash plays a key role in crisis management planning in the Netherlands. The Dutch central bank has also concluded that the cash infrastructure can cover a maximum of 50 per cent of physical trade transactions in a crisis scenario. They are therefore also looking into digital alternatives, including the offline functionality of payment cards and payment terminals.

<sup>38</sup> In Norway, citizens experienced long queues at ATMs in connection with a breakdown in 2022 (only in Norwegian ([link](#))).

<sup>39</sup> See Frederik Ræbild Kjemtrup, Offline card payments as a payment contingency measure, *Danmarks Nationalbank Analysis*, no. 17, 2023 ([link](#)).

<sup>40</sup> See History of money, Danmarks Nationalbank ([link](#)).

for goods of different values. In addition, money must have a relatively stable value both now and in the future in order to avoid uncertainty about how many goods and services you can purchase today – or tomorrow. Money must also be usable as a unit of measurement to determine the prices of goods and services. Finally, money must be very difficult to counterfeit so that there is trust in its value.

In addition to the general characteristics of money, cash differs from digital bank deposits in that cash is money issued by the central bank. This means that the value of cash is guaranteed by the central bank, while the value of digital money is guaranteed by private banks. There is consequently no counterparty risk in holding cash as opposed to digital money.<sup>41</sup>

The possibility of converting digital bank deposits into physical cash can therefore potentially contribute to cash guaranteeing trust in the value and usability of digital money.<sup>42</sup>

#### ***Less cash is unlikely to affect trust in digital money***

Less cash in society is unlikely to affect the Danes' trust in or perception of digital money relative to cash, not even if the use of cash is further reduced. This reflects several factors.

Firstly, digital money are anchored in a central bank money. Digital central bank money is thus the foundation for the settlement of interbank transactions, as these are settled using the banks' central bank deposits.<sup>43</sup> This relationship underpins trust in digital money and that it can be exchanged for cash issued by the central bank.

Secondly, digital payment solutions are used for the vast majority of all payments in Denmark. Many citizens today already live fully or partially without cash, and this does not seem to affect the overall trust in digital money. Nor does less cash in society seem to have affected trust in digital money in Norway and Sweden, where the use of cash is lower than in Denmark, see section 1.

Thirdly, effective financial regulation and supervision of banks contribute to individuals' and businesses' digital bank deposits typically being regarded as at least as safe as cash. One reason for this is the deposit guarantee scheme, which ensures that even though resolution of a bank is necessary, the customer will not incur a loss if the customer's deposit is below approx. kr. 750,000.<sup>44</sup>

Fourthly, the broad anchoring of instant payments in Denmark appears to support trust in digital money.<sup>45</sup> This is largely due to instant payments and payment solutions linked to this type of payment increasingly having become an alternative to cash, one reason being that the payer makes the payment and the payee receives the money immediately, see section 1.

Instant payments can support citizens' trust in money with the bank, which is underlined by two in three citizens responding that it is crucial for their trust in money to be able to transfer their money via an instant payment, see chart 16.

<sup>41</sup> See Danmarks Nationalbank, New types of digital money, *Danmarks Nationalbank Analysis*, no. 8, June 2022 ([link](#)).

<sup>42</sup> Based on this premise, citizens accept that banks store their money and act as an intermediary for their payments, as 100 digital kroner can always be exchanged for kr. 100 in cash: This is called parity. The parity and ensuing trust are built up over time, and every time deposits in banks are used as a means of payment on an equal footing with cash, or citizens exchange digital money for cash, they are reassured of the parity. See European Central Bank, CBDC: defining the problems, designing the solutions, February 2022 ([link](#)).

<sup>43</sup> See Danmarks Nationalbank, New types of digital money, *Analysis*, No. 8, June 2022 ([link](#)).

<sup>44</sup> See Danish Guarantee Fund ([link](#)).

<sup>45</sup> Instant payments were introduced in 2013 with the Straksclearing (instant clearing) system, where individual citizens can quickly and easily transfer money from one bank to another 24 hours a day.

This assessment is broadly anchored in the population, but especially among the younger part of the population.

In comparison, just under half the population respond that the ability to withdraw cash is important for their trust in money in the banks. Especially two groups respond that the ability to withdraw cash is crucial for their trust in money in the bank:

One group is typically senior citizens who either use cash for payments or for whom cash is directly linked to their trust in the financial system. In this context, it should be taken into account that digital payments actually only really took off in Denmark 20 years ago. For people in this age group cash has been their only payment option for much of their lives.

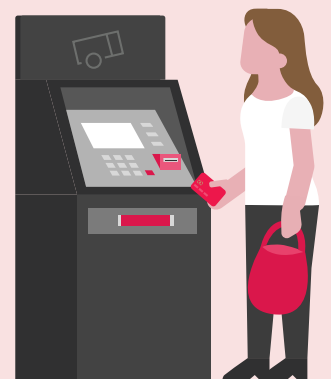
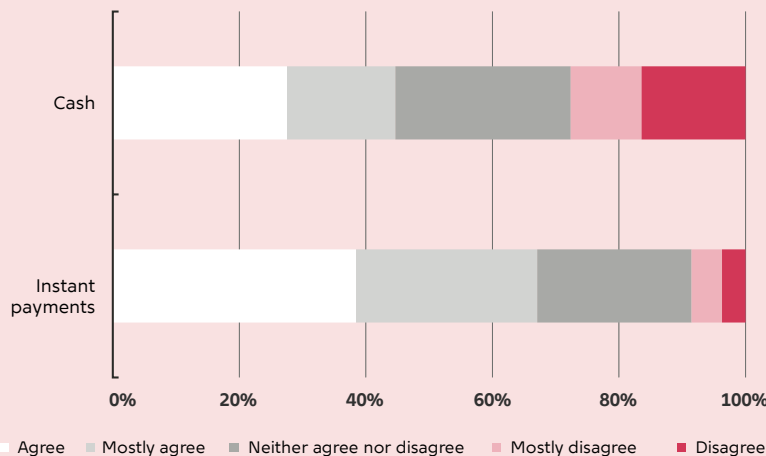
The second group consists of citizens who generally have lower trust in society as a whole. They prefer cash for both payments and as a store of value, one reason being the possibility of anonymity. It is thus not necessarily the trust in cash as central bank money that determines this group’s trust in the bank (and in society as a whole).

Overall, the findings mentioned above do not seem to indicate, that trust in digital money depends on the characteristic of cash as central bank money.

CHART 16

**The possibility of instant payments means more to citizens’ trust in money than the ability to withdraw cash**

“It’s crucial for my trust in money in the bank that I can withdraw my money in cash/move my money via an instant payment”



Source: Danmarks Nationalbank.

# 03 Cash infrastructure and cash services in Denmark

Less cash in society has meant that the key players in the Danish cash supply, see box 6, have continuously adjusted parts of the cash infrastructure and the services offered.

## BOX 6

### The Danish cash supply

The task of ensuring a well-functioning cash infrastructure is handled in close collaboration between Danmarks Nationalbank, depository bank, banks and the cash management companies Nokas and Loomis. All these players have an important role in the cash infrastructure and are essential for cash to be accessed and used by individuals and businesses.

One of Danmarks Nationalbank's core tasks is to issue banknotes and coins in Denmark. Danmarks Nationalbank is responsible for the production, security and design of banknotes and coins, ensuring that cash is a secure and efficient means of payment. Danmarks Nationalbank also supplies new banknotes and coins to the cash depots and handles returns of damaged banknotes to Danmarks Nationalbank.

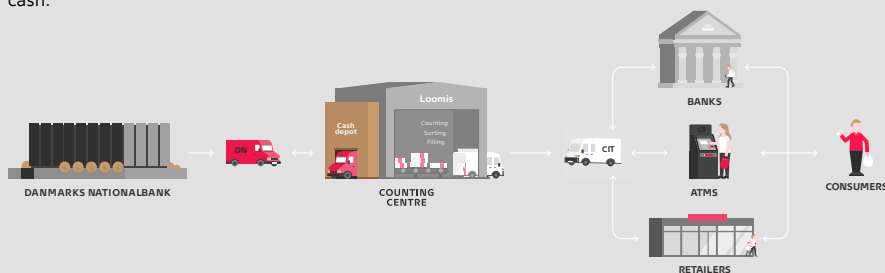
In addition to being banks, Danske Bank and Nordea are also so-called depository banks, and they each own two central bank depots in Aarhus and Copenhagen, respectively. As depository banks, they are responsible for managing the cash in the cash depots. Danske Bank and Nordea are therefore responsible for counting and sorting the cash to be used in society, for example in the banks and retail trade. All banks can be a customer of a central bank depot and are always entitled to collect and hand in cash at prices set by Danmarks Nationalbank.

In practice, cash management companies (also known as cash-in-transit (CIT) companies) handle the operations in the central bank depots on behalf of the depository banks, although the depository banks have the ultimate responsibility for operations, security etc. in the cash depots. The handling of cash in the central bank depots thus takes place physically in the CIT companies' counting centres.

The CIT companies also perform a number of other tasks for, for example, banks and retailers, as the handling of cash is often associated with economies of scale. The vast majority of banks have outsourced servicing of ATMs as well as counting and sorting of banknotes and coins to the CIT companies.

Several large retail customers have also entered into agreements with the CIT companies on collection and sorting of banknotes and coins, counting and provision of change services as well as crediting funds directly in the customer's bank account. Banks and retailers agree prices and terms with the CIT companies independently of Danmarks Nationalbank.

The last link in the cash supply chain is access to cash for individuals and businesses that do not have an agreement with a CIT company. Individuals typically withdraw cash at ATMs or in stores and use it for payments. Businesses demand cash for, for example, change and most often use the bank to deposit cash.



Source: Danmarks Nationalbank.

The lifespan of Danish banknotes has increased in line with the declining use of cash for payments and continuous upgrades of banknote quality. This has contributed to Danmarks Nationalbank ceasing its own cash production in 2016 and instead outsourcing the production of banknotes and coins to external suppliers.<sup>46</sup>

In addition, the CIT companies have had a financial need to change their practice over the years, as the handling of cash is connected with economies of scale. The collection at a given location costs more or less the same, regardless of whether a large or small quantity of cash is to be collected. The costs are also lower per collection, the more stops the CIT company makes en route. Declining use of cash in society can thus affect not only the prices for the collection of cash but also the supply of cash services.

Banks play a central and natural role in the cash infrastructure in relation to individuals' and businesses' access to cash. Banks are most often the link between citizens, stores and CIT companies and make facilities available that are necessary for cash withdrawals and deposits. Despite adjusted cash management practices, the banks remain a natural part of the handling of cash in Denmark.

#### **Less cash reinforces new deposit and withdrawal trends**

In recent years, there has been a major adjustment in the supply of and development in cash services, for example in individuals' and businesses' access to withdraw and deposit cash, see box 7. New functionalities in ATMs, for example for deposits, and the banks' natural focus on costs have led to limited access to physical cash services.

#### **BOX 7**

##### **Cash services in Denmark**

Danmarks Nationalbank's analysis of cash services in Denmark focuses on cash services at the counter and self-service cash services. A cash service can be defined as a service where individuals and businesses can withdraw or deposit cash. These services play a key role in the overall access to cash in Denmark.

*Cash services at the counter* are services where individuals and businesses are in physical contact with a human being. This can be physical service in the banks' advisory service centres, at the checkout in a supermarket, where it is also common to withdraw cash, or delivery and collection of cash, for example change, via a CIT company.

*Self-service cash services* are services where individuals and businesses are not served by a human being, but instead use, for example, an ATM for deposits or withdrawals, coin counter, night depositories and other drop-off options.

The analysis focuses only on access to cash in Danish kroner in Denmark and does not include deposits and withdrawals at bureaux de change, cross-border activity with cash as well as deposit and withdrawal of foreign currency in banks, ATMs etc.

The restriction on access to physical services has shifted the handling of cash from the advisory service centres to the ATMs. This has reduced the range of services supplied by the banks, including payment of bills at the counter, direct access to personal service, handing in the day's revenue at the counter, purchase of change for businesses as well as handling of older and damaged cash. Access to a serviced counter is still possible in many banks in their advisory service centres,

<sup>46</sup>The production of new Danish coins is currently being handled by Mint of Finland, and the production of new Danish banknotes is handled by the private security printers Oberthur Fiduciaire SAS in France.

but most often requires prior telephone contact or customer service during selected hours.

The reduction in the supply of cash services should be seen in the context of fewer payments with cash leading to a general decline in the demand for cash among banks, including the need for customer services at the counter in advisory service centres. In continuation of this, many banks have adjusted their supply of cash services, which has affected their cash handling practices.

The banks' adjustment to the development has also affected the use of cash services by individuals and businesses in recent years. In 2017, the majority of cash withdrawals were made in ATMs, but withdrawals amounting to just under kr. 20 billion were also made at the counter in the banks. By comparison, virtually the entire value of cash withdrawals was made at ATMs in 2023, see chart 17.

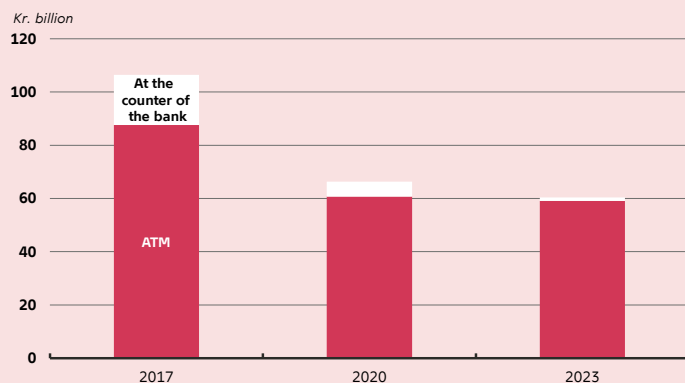
The same trend applies to cash deposits, where night depositories have historically been widely used, especially by businesses. In 2023, however, most cash deposits are made via ATMs, while deposits in bank branches and night safe deposit boxes are only used to a modest extent. This is due to a number of reasons, including that several banks have replaced cash services at the counter and night depositories with ATMs that allow cash deposits.

A comparison of the figures for withdrawals and deposits with banks shows that the net withdrawal of cash, i.e., the difference between withdrawals and deposits, is now higher than in previous years. This occurs at the same time as the total cash in circulation has been declining since summer 2022, see chart 8. This indicates that, over the past year, citizens have used their cash to a greater extent through payments at, for example, retailers.

CHART 17

**ATMs play a greater role in access to cash**

Total value of cash withdrawals in banks

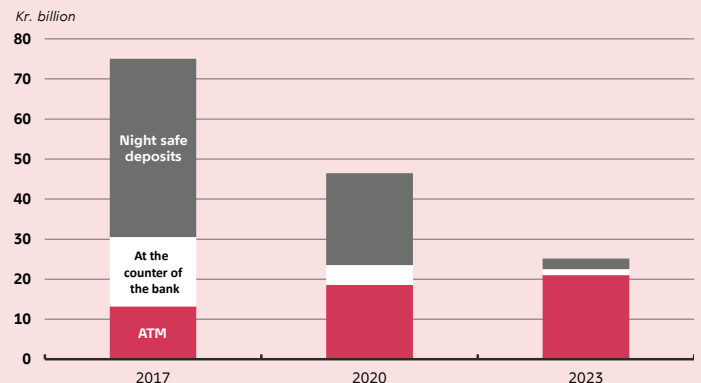


Note: The 2023 figure has been calculated from Q4 2022 to Q3 2023.  
Source: Danmarks Nationalbank.

CHART 18

**The majority of cash deposits are today made via ATMs**

Total value of cash deposits with banks



Note: The 2023 figure has been calculated from Q4 2022 to Q3 2023.  
Source: Danmarks Nationalbank.



**Withdrawal of cash is adjusted to the needs of society**

The number of ATMs plays a key role in overall access to cash in society. Danske Bank, Nordea Bank and Kontanten<sup>47</sup> are the largest Danish providers of ATMs. They account for approx. 60 per cent of all ATMs, see chart 19, while Euronet is the largest foreign ATM provider.

Since 2017, the number of ATMs in Denmark has been reduced by more than a fifth to approx. 1,800 ATMs in 2023. The reduction is broadly distributed across Danish banks, where fewer cash payments have led to an adjustment in the number of ATMs. The banks have also chosen to sell off several ATMs to other specialised agents. This applies, in particular, to ATMs located in shopping centres, at holiday destinations and in airports.<sup>48</sup>

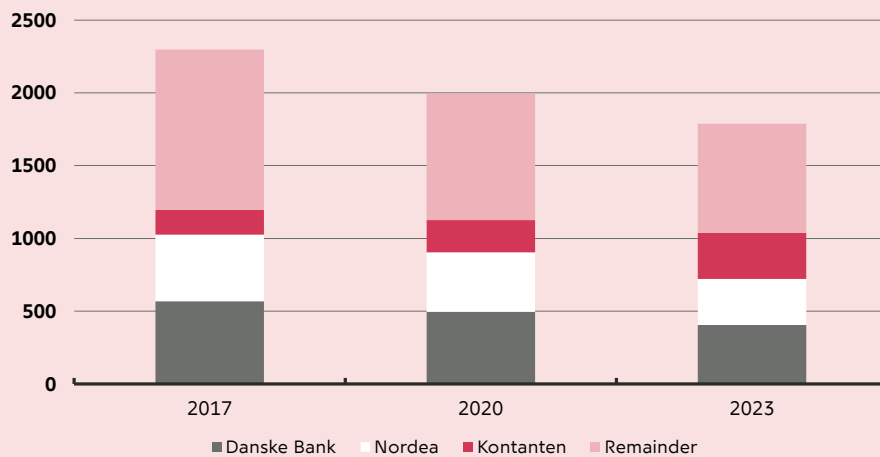
Overall, the adjustment may have reduced the maximum capacity for ATM withdrawals. However, this should be seen in conjunction with new ATMs having a higher capacity than older ATMs, i.e. the number of banknotes that can be loaded in the ATM is larger.

The lower number of ATMs has not necessarily reduced the availability significantly (distance to the nearest ATM). The reason for this is that the adjustment to fewer ATMs in the banks has largely been achieved by taking ATMs out of service if there have been several ATMs located immediately next to each other.

CHART 19

**Development in the number of ATMs with a withdrawal function**

ATMs, total



Note: The chart shows the number of ATMs at the end of Q2 in the Danish market. 'Kontanten' includes all banks in the collaboration in 2023 and 2020. Nykredit and Spar Nord represent 'Kontanten' in 2017. The remainder covers all other banks and providers of ATMs in the Danish market.

Source: Danmarks Nationalbank.

<sup>47</sup> Kontanten is an established collaboration between 25 banks and the CIT company Nokas offering a common withdrawal and deposit function across the partner banks.

<sup>48</sup> The CIT companies Nokas and Loomis are also playing an increasingly important role in the market as a whole. For example, Loomis has acquired several ATMs from Jyske Bank and Sydbank, see Finanswatch (only in Danish) ([link](#)).

The number of ATMs is highest in cities, which is natural given the larger population base. However, large regional banks, in particular, ensure that there are also ATMs outside the largest cities in the areas in which their customers are located, see chart 20 and chart 21.

The overall availability should also be seen in relation to less than 1 per cent of all households in Denmark having more than 10 kilometres to the nearest ATM. Four in five households have less than 2 kilometres to the nearest ATM, see table 1.

The distribution of ATMs thus indicates that the vast majority of citizens have access to an ATM in their local area.

TABLE 1

**Four in five citizens have less than 2 kilometres to the nearest ATM**

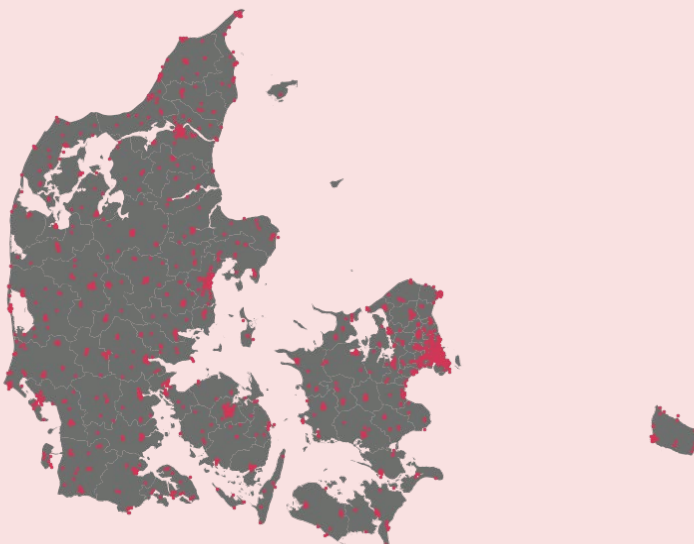
	Share of all households (percentage)
Less than 2 kilometres	80.2
Between 2 and 5 kilometres	11.3
Between 5 and 10 kilometres	7.9
Over 10 kilometers	0.6

Note: The calculations are based on Danish and foreign providers of ATMs that report to Danmarks Nationalbank's statistics for payments as well as addresses in the Danish National Register addresses.

Source: Statistics Denmark, the banks' websites and Danmarks Nationalbank.

CHART 20

**Withdrawal of cash at ATMs**

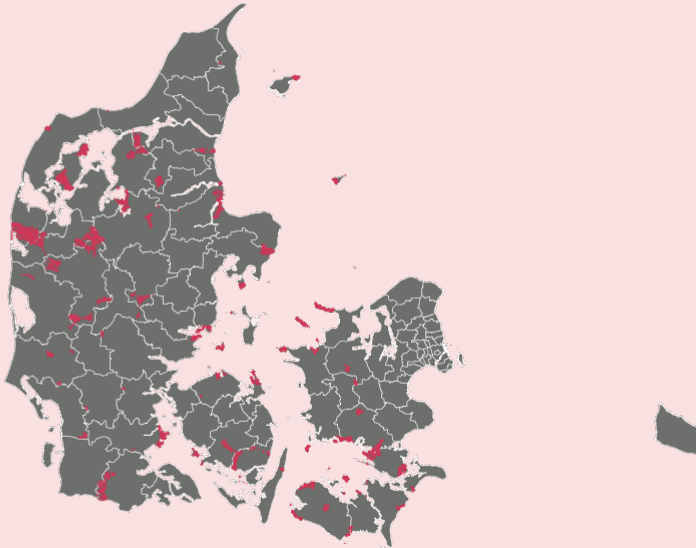


Note: The map indicates all ATMs with a withdrawal function in Denmark. Data have been collected via the banks' websites and Danmarks Nationalbank's payment statistics for Q2 2023. The maps cover Danish and foreign providers of ATMs that report to Danmarks Nationalbank's statistics.

Source: Danmarks Nationalbank.

CHART 21

**Few areas in Denmark with more than 10 kilometres to the nearest ATM**



Note: The map indicates areas where citizens have more (red) and less (grey) than 10 kilometres to the nearest ATMs with a withdrawal function. Data have been collected via the banks' websites and Danmarks Nationalbank's payment statistics for Q2 2023. The maps cover Danish and foreign providers of ATMs that report to Danmarks Nationalbank's statistics.

Source: Danmarks Nationalbank.

Declining use of cash and fewer ATMs have led to growing concern about the availability and usability of cash, for example in Lithuania and Sweden. This has resulted in new legislation aimed at ensuring access to cash for citizens, for example requirements for the maximum distance to the nearest ATM.

Danmarks Nationalbank does not currently share the same concern in a Danish context. This is primarily due to the current distribution of ATMs, and that a requirement for availability, such as the distance to the nearest ATM, should be seen in relation to where the cash can be used. For example, almost a third of the population who have more than 5 kilometres to the nearest ATM also have more than 5 kilometres to the nearest grocery store. In addition, it is possible to withdraw cash in most grocery stores. This further reduces the need for a large number of ATMs.

According to Danmarks Nationalbank's latest survey, more than one in three Danes withdrew cash in a store in the past year in connection with a purchase.<sup>49</sup> Cash withdrawals at retailers are thus an important supplement for access to cash in Denmark today. In the future, they may play an even more important role if access to other cash services is reduced as a result of, for example, lower demand for cash for payments.

<sup>49</sup> Danmarks Nationalbank's survey indicates that citizens outside large cities make greater use of the cash-back option offered by stores as a supplement to cash withdrawals from banks.

Also in a European context, it is seen that access to cash via the retail sector can play a more important role. The European Commission's proposal for the third Payment Services Directive explicitly allows stores that are not subject to financial regulation to let citizens withdraw cash in connection with a card payment, even without making a purchase.<sup>50</sup>

In addition, stores may continue to offer cash withdrawals in connection with a purchase ('cash-back'). If the stores are willing to offer this service, it can contribute to increasing the availability of cash services where individuals and businesses can access cash.

All in all, the current access to withdrawals of cash is adequate. Citizens have several good options for accessing cash in grocery stores and across ATMs regardless of customer relationship.

#### **Access to change for business operators**

ATMs generally cannot handle withdrawal of coins. This also includes change to businesses (coins).

Today, businesses can order cash for collection in the banks' advisory service centres. In addition, CIT companies offer to deliver change at the business's address – either as a separate service or as an integrated part of a subscription where the CIT company delivers and collects cash on a regular basis.<sup>51</sup> It is also possible to order cash via a CIT company, where the company delivers, for example, change and banknotes in small denominations for collection at the store's bank, with which the CIT company already has a business relationship.

In addition, a few new measures have also been implemented to provide access to change. This applies, for example, to the possibility of buying coin rolls from dispensers. The coin roll dispensers are not conditional on a customer relationship, which means that anyone who is in possession of a payment card can use the service. A processing fee is charged per coin roll regardless of the number of coin rolls and type of coins.

However, the business' possibility of accessing cash must be seen in relation to their obligation to accept cash. Access to cash and change, therefore, requires special attention and may potentially pose a challenge for some stores.

#### **Depositing of cash in self-service cash services**

Today, half of all ATMs in Denmark have a deposit function, i.e. individuals and businesses can deposit cash into their bank account via an ATM.

Unlike cash withdrawals, the depositing of cash requires a customer relationship unless the banks enter into a business collaboration or partnership such as Kontanten, see below. This means that, for example, a Danske Bank customer cannot deposit cash via Nordea's ATMs. The possibility for individuals and businesses to deposit cash via ATMs thus depends on the ATMs of their own bank.

The increase in the number of ATMs with a deposit function is part of banks' adjustment of the cash infrastructure, including that the cash services in the advisory service centres have been moved to the ATMs, see chart 22.

The number of providers with their own ATMs has been reduced from approx. 50 banks in 2017 to less than 20 today. This development is largely due to the established collaboration between 25 banks and the CIT company Nokas offering



**All in all, there is currently adequate access to disbursement of cash, as citizens have good opportunities to access cash in grocery stores and across ATMs regardless of customer relationship.**

<sup>50</sup> See the European Commission's proposal to amend the Payment Services Directive (28 June 2023).

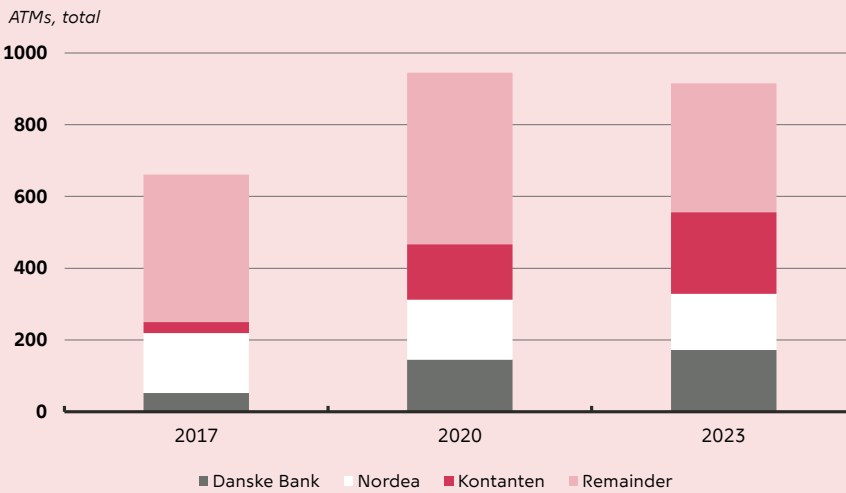
<sup>51</sup> The CIT companies state that they offer delivery of change from kr. 150 throughout Denmark, without the customer having to establish a permanent customer relationship and buy other services.

a common withdrawal and deposit function across the institutions under the name 'Kontanten'. It allows private customers and business customers to withdraw and deposit cash in the ATMs across all the partner banks. Taken in isolation, the collaboration increases the possibility of depositing cash, as it reduces the fragmentation in the cash infrastructure.

Today, the three largest providers cover much of Denmark, while major regional banks are strongly represented in certain areas such as South and Southern Jutland and the Greater Copenhagen area, respectively, see chart 23.

CHART 22

Development in the number of ATMs with a deposit function

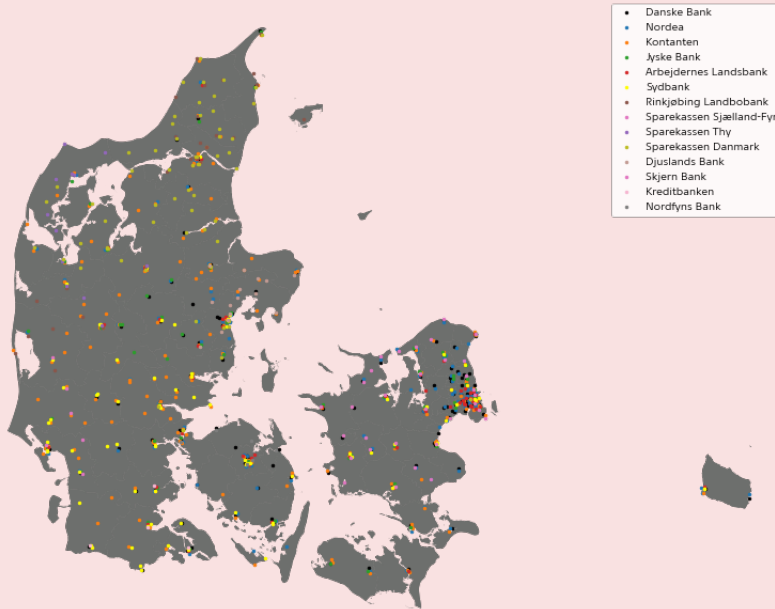


Note: The chart shows the number of ATMs at the end of Q2. 'Kontanten' includes all banks in the collaboration in 2023 and 2020. Nykredit and Spar Nord represent 'Kontanten' in 2017. The remainder covers all other banks and providers of ATMs in the Danish market.

Source: Danmarks Nationalbank.

CHART 23

### Depositing of cash in ATMs



Note: Data have been collected via the banks' websites and Danmarks Nationalbank's payment statistics for Q2 2023. The map covers Danish providers of ATMs that report to Danmarks Nationalbank's payment statistics.

Source: Danmarks Nationalbank.

### Focus on cash deposits may be necessary in the future

There is much to indicate that access to deposits via ATMs is sufficient for most people. This is largely due to the increase in the number of ATMs with a deposit function and the consolidation in the market, ensuring greater accessibility for individuals and businesses.

However, stores must be offered reasonable access to cash deposits, as they are obliged to accept cash.<sup>52</sup> Hence, banks must continue to support reasonable access to ensure the efficiency of cash payments for the stores.

For large stores, an agreement with a CIT company will often be the most advantageous solution in terms of both costs and flexibility. For the smallest stores that receive few cash payments, ATMs with a deposit function will largely be sufficient in relation to both the availability and volume of banknotes they receive, see box 8.

Nevertheless, there will be stores where the nearest deposit facility may be far away or where the deposit of cash is associated with high costs. Thus, there seems to be a potential for supporting access to deposit facilities for businesses by strengthening cooperation in the sector so that deposits can increasingly be made across banks.

<sup>52</sup> The switch from physical cash counters to ATMs also contributes to making it more difficult for stores to hand in coins.



**There seems to be a potential for supporting access to deposit facilities by strengthening cooperation in the sector so that deposits can increasingly be made at ATMs across banks.**

#### BOX 8

##### Limits on cash withdrawals and deposits in ATMs

Limits on how much individuals and businesses can withdraw or deposit via an ATM vary depending on card type, customer relationship and time of the transaction.

###### Private individuals

Most banks allow private customers to withdraw kr. 5,000-15,000 in cash per day with a rolling monthly limit of kr. 15,000-30,000. The limits are typically highest if the customer withdraws cash during the bank's opening hours and from ATMs belonging to the customer's own bank.

The limits should be seen in light of the fact that an average Danish citizen has an average disposable monthly income of more than kr. 22,000. This means that the current maximum limits of ATMs cover both expected and unforeseen day-to-day payments in most cases even if a citizen wish to pay everything with cash. In addition, many large payments cannot be made with cash, for example outstanding tax and expenses for housing loans. Furthermore, payments of more than kr. 20,000 are subject to the cash prohibition in the Danish Anti-Money Laundering Act (*Hvidvaskloven*), see box 3.

In relation to deposits, most banks have a monthly deposit limit of kr. 10,000-30,000 in ATMs. The cash deposit limit is subject to the bank's own guidelines for how much cash private individuals can deposit per month, taking into account, for example, anti-money laundering rules. The limits should be seen in relation to cash basically being a means of payment and thus used in stores etc.

###### Business operators

In many banks, business customers are subject to the same withdrawal limits as private customers if they use a payment card. This means that the limits are also highest when the customer withdraws cash during the bank's opening hours and from ATMs belonging to the customer's own bank. If needed, the limit can often be increased at the customer's request.

The limit for cash deposits for business customers varies between banks, but it is significantly higher than for private individuals, as business customers accept cash. Several banks have deposit limits of kr. 250,000 per month, which can be increased at the customer's request if the customer has a need for it and it that can be documented to the bank in accordance with its anti-money laundering procedures etc.

For large business operators with high volumes of cash, an agreement with a CIT company is likely to be regarded as the most suitable solution in terms of both costs and flexibility..

In the future, grocery stores may also play an increasingly important role in relation to cash deposits. This is, for example, the case in Norway, where certain grocery stores handle cash deposits and withdrawals.<sup>53</sup>

<sup>53</sup> In Norway, the grocery retail and wholesaling group Norgesgruppen has launched a cash deposit and withdrawal function in their stores. The solution is part of the rules of the Bank Accept payment card, where citizens can withdraw up to 10,000 Norwegian kroner and deposit up to 20,000 Norwegian kroner. In connection with a cash deposit, the sales assistant accepts the cash and registers the transaction with the customer's bank. The customer's bank and not the store subsequently performs a money laundering check of the transaction. The supermarkets also have a financial incentive to handle deposits and withdrawals in the model, see Norgesgruppen ([link](#)).

### Access to cash services at the counter

It is a prerequisite for the ability to pay with cash that individuals and businesses can access and deposit cash. The banks support this through cash services at the counter and ATMs. At the ATMs, individuals and businesses can withdraw and deposit cash at all hours, which is not the case for serviced cash services. The banks' role and responsibility in ensuring access to cash in Denmark have nevertheless been the object of debate as they have discontinued serviced counters, one argument being the impact on those citizens who, for various reasons, cannot use an ATM.<sup>54</sup>

The legislation does not oblige the individual bank to offer specific cash services, such as access to personal service at the counter. The individual bank is only obliged to provide the same services to all its customers. This means that the law does not oblige banks to offer specific cash-related services to individual customers.

Although the adjustment of the access to physical service in the bank has moved the handling of cash from the advisory service centres to the ATMs, the vast majority of banks offer individuals and businesses the opportunity to collect and deposit cash at counters open on a part-time basis by prior appointment. The provision of cash services at the counter varies from bank to bank and, according to a survey conducted by Danmarks Nationalbank, can be grouped in to two major categories: Large banks and small banks.<sup>55</sup>

The large banks, with the exception of Danske Bank, have no serviced counters. However, most customers can contact their bank or book an appointment to either deposit cash or collect cash, including exchanging older banknotes and coins.<sup>56</sup>

Most small banks have counters that are open on a part-time basis, for example 10:00-12:00 on Tuesdays or that are open for customer service a few days a month, allowing customers to deposit or collect cash in the bank. The smallest banks, which have few or no ATMs, are typically still open for customer service at the counter.

Historically, there has been a balance between supply and demand for cash. Overall, the current adjustment of cash services at serviced counters seems in line with the declining demand from individuals and businesses. The services available at ATMs are also appropriate substitutes for cash services at serviced counters, with the exception of, for example, the handling of damaged cash and older series of banknotes and coins. At the moment, Danmarks Nationalbank therefore does not see a need to impose an obligation on banks in relation to their cash services.

Danmarks Nationalbank expects the banks to jointly provide facilities that ensure the handling of cash for individuals and businesses also in the future, so that cash will remain a secure and efficient means of payment. To this end, banks must continue to assume their role as a central part of the cash infrastructure. This includes safeguarding the opportunity of individuals and businesses to convert digital bank deposits into cash, and vice versa, as well as ensuring access to cash



**Danmarks Nationalbank does not currently see a need to introduce an actual obligation for banks in relation to their cash services.**

<sup>54</sup> The banks have informed Danmarks Nationalbank that their staff also help their customers today if, for example, they have difficulty withdrawing cash from ATMs.

<sup>55</sup> In the first part of June 2023, Danmarks Nationalbank asked Danish banks about their practices for handling cash in their advisory service centres, including cash services at serviced counters. 45 institutions responded to the questions in the questionnaire, which was circulated by Finance Denmark and the Association of Local Banks, Savings Banks and Cooperative Banks in Denmark on behalf of Danmarks Nationalbank.

<sup>56</sup> The banks have also responded in Danmarks Nationalbank's survey that the vast majority of ATMs can handle the deposit of banknotes from the 1997 series (science, culture and church art).



for individuals and businesses. Danmarks Nationalbank will monitor the development closely.

### **Few citizens find that withdrawal and deposit options pose challenges**

The adjustment in the cash infrastructure meets the needs of most citizens, and they are generally satisfied with the possibility of withdrawing and depositing cash at ATMs. Only a few citizens see challenges in relation to withdrawing cash from ATMs, see chart 24, including the distance to the nearest ATM or customer fees for withdrawals.

The vast majority of citizens also state that the deposit function of ATMs meets their need for depositing banknotes. However, 11 per cent find that the deposit options do not meet their needs. In particular, this seems to reflect that citizens would like to deposit cash at the counter in the bank to a greater extent or that the nearest ATM is far away, while few citizens state that they feel that it is unsafe to deposit cash at an outside ATM.

More than one in five citizens state that the options for depositing cash at the counter in a bank do not meet their needs, see chart 25. However, it is unclear whether the responses reflect the limitations in citizens' direct access to personal service at the bank without an appointment.<sup>57</sup>

The banks are not the citizens' only option for accessing and depositing cash. There are also wide opportunities for cash withdrawals in, for example, grocery stores, of which almost 40 per cent of the population made use in 2023.

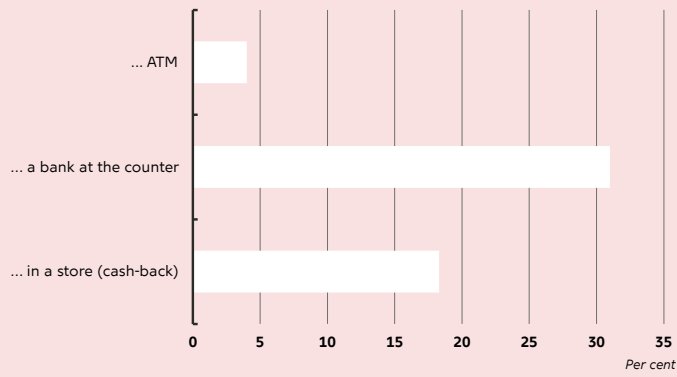
It is up to the individual store if it wants to offer cash withdrawals. This also means that it is not possible to withdraw cash in all stores and with all types of payment cards, which is the primary reason why some citizens find that withdrawals in a store do not meet their needs. In addition, a minor part of the population state that the service is connected with fees or obstacles that limit the possibility of withdrawing cash, for example that a purchase must be made in connection with the withdrawal or that the store is unable to meet the customer's requested amount of cash.

<sup>57</sup> 26 per cent of citizens state that they are dissatisfied with the options for depositing coins in the bank. The primary reason for this that it is not possible for them to deposit coins at their bank or that it is cumbersome to deposit coins at both ATMs and in coin counters. At the same time, some citizens indicate that the nearest coin counter is far away and that fees are usually charged for depositing coins.

CHART 24

**Citizens' views on options to withdraw cash in Denmark**

Proportion of the population who have responded that the following cash services do not meet their need for cash withdrawals in ...

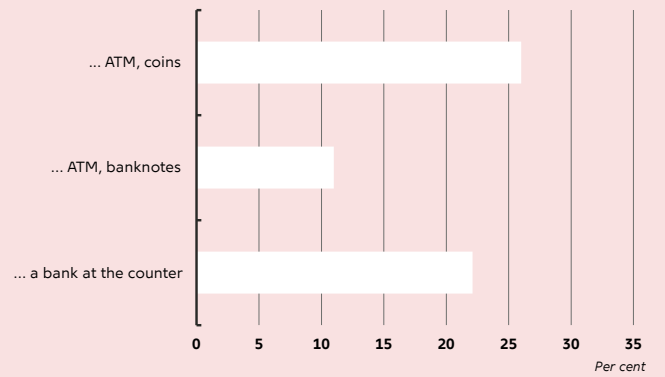


Source: Danmarks Nationalbank.

CHART 25

**Citizens' views on options to deposit cash in Denmark**

Proportion of population who have responded that the following cash services do not meet their need for cash deposits in ...



Source: Danmarks Nationalbank.

# 04

## Cash must remain a secure and efficient means of payment also in the future

The previous sections show that even though the use of cash has declined to a low level in Denmark, there will still be a need for cash in society in the coming years.

Cash is both a means of payment in stores and between private individuals, and it has a number of special characteristics that are appreciated by some citizens. In addition, a small group of citizens depend on cash as a means of payment for various reasons, see section 2.

To ensure that cash remains a secure and efficient means of payment for individuals and businesses also in future, Danmarks Nationalbank will issue a new series of banknotes. The series of banknotes will replace the 2009 series and will be based on state-of-the-art technologies to prevent counterfeits, see Danmarks Nationalbank's new initiatives in the cash area for a further description.<sup>58</sup> This is in accordance with new series of banknotes having been launched at regular intervals also in the past.

Until the new series of banknotes is launched, Danmarks Nationalbank will continue to support the high level of security in the current series of banknotes. For example, a new security-updated version of the 500-krone banknote was put into circulation in 2020, and, from early 2024 and in 2025, security-updated 50-krone, 100-krone and 200-krone banknotes in the current series will also be put into circulation.

### *Older valid series of banknotes and coins*

Before the current series of coins and banknotes, Danmarks Nationalbank has over the years issued several other series of coins and banknotes. All banknotes (except for a few 5-krone and 10-krone banknotes) issued after the 1945 money changeover are still legal tender in Denmark, see box 9. In addition, all coins issued after the coinage reform in 1873, in denominations of 50-øre and higher, are also legal tender.

Denmark has not had a practice of recalling banknotes and coins when new series are introduced.<sup>59</sup> This also means that nearly kr. 4 billion of the approximately kr. 69 billion total cash in circulation consists of older series of banknotes and coins, see table 2.



**Although the use of cash has declined to a low level, there is still a need for cash in society.**

**Cash is both a means of payment used in stores and between private individuals. Furthermore, a small group of citizens depend on cash for various reasons.**

<sup>58</sup> See Danmarks Nationalbank's new initiatives in the cash area ([link](#)).

<sup>59</sup> In Norway and Sweden, for example, it is standard practice that older series of banknotes are recalled and invalidated in connection with the launch of a new series of banknotes.

## BOX 9

### Previous recalls of banknotes and coins

#### The 1945 changeover of banknotes

As from 23 July 1945, all series of banknotes issued before that date lost their status as legal tender, but retained their validity vis-à-vis Danmarks Nationalbank up to and including 30 July 1945. Banknotes that were not exchanged before this date could still be exchanged by Danmarks Nationalbank under certain circumstances. Danmarks Nationalbank's money changeover of the recalled banknotes ceased with final effect in 1946.<sup>1</sup>

#### Recalled banknotes since 1945

Banknotes have only been recalled twice pursuant to section 8(3) of the Danmarks Nationalbank Act (Nationalbankloven) since the changeover in 1945. From 1 July 1953, 5-krone banknotes of the blue type, printed since 1944, 10-krone banknotes of the brown type, printed in 1944, and 10-krone banknotes of the green type, printed since 1945, ceased being legal tender, but retained their validity vis-à-vis Danmarks Nationalbank up to and including 30 June 1954. From 1 January 1955, 10-krone banknotes of the light brown type ceased being legal tender, but retained their validity vis-à-vis Danmarks Nationalbank up to and including 31 December 1955.<sup>2</sup>

#### Coinage reform of 1873

With the Danish Coinage Act (Møntloven) of 1873, Denmark switched to basing its monetary system on the gold standard, and rigsdaler was replaced by kroner as the Danish currency unit. One rigsdaler could be exchanged for two kroner. There has been no changeover of coins since then, and coins issued after the Danish Coinage Act of 1873 are therefore still valid as a means of payment in Denmark and can be exchanged for new coins.

#### Recalled coins since 1873

The recall of coins pursuant to section 3 of the Danish Coinage Act has been done in several rounds in step with the phasing out of the coins with øre-denominations. Therefore, the ½-krone coin as well as the 1-øre, 2-øre, 5-øre, 10-øre and 25-øre coins have all been recalled and invalidated. This means that they are no longer legal tender and cannot be exchanged in Danmarks Nationalbank. The ½-krone coin was withdrawn on 31 December 1942. The 1-øre and 2-øre have not been exchangeable since 30 June 1973 and the 5-øre and 10-øre coins not since 1 July 1992. The 25-øre coin was declared invalid as a means of payment in 2008, while the deadline for exchange in Danmarks Nationalbank was 1 October 2011.

#### Rules for the recall of legal tender

Pursuant to section 8(3) of the Danmarks Nationalbank Act, banknotes may be recalled with the permission of the Minister for Industry, Business and Financial Affairs and will then cease to be legal tender from the date laid down in an executive order. When one year has passed from then, the recalled banknotes will also lose their validity vis-à-vis Danmarks Nationalbank, but Danmarks Nationalbank is entitled also to exchange the banknotes later on if the circumstances so warrant.

Under section 3 of the Danish Coinage Act, the Minister for Industry, Business and Financial Affairs may, after negotiation with Danmarks Nationalbank, decide that coins are no longer valid as a means of payment. The period for invalidation vis-à-vis Danmarks Nationalbank must be at least three months and is fixed by a royal decree.

<sup>1</sup> See Danmarks Nationalbank, Report and Accounts for 1945.

<sup>2</sup> See Executive Order No. 345 of 14 October 1952, and Executive Order No. 64 of 15 March 1954.

TABLE 2

**Old series of notes and coins account for nearly kr. 4 billion of cash in circulation**

	Kr. million
1000-krone banknotes	1,446
500-krone banknotes	625
200-krone banknotes	214
100-krone banknotes	681
50-krone banknotes	267
5-krone, 10-krone and 20-krone banknotes	185
Coins issued before 1989	383
<b>Total value of older series of banknotes and coins</b>	<b>3,801</b>

Note: The value of older series of banknotes and coins has been calculated as of 31 October 2023.  
Source: Danmarks Nationalbank.

The adjustment of the cash infrastructure as well as the declining use of cash by citizens in stores lead to older banknotes not being a secure and efficient means of payment today. There are currently five valid series of banknotes that can be used as means of payment in stores. This places great demands on recognisability by banks and stores when the cash is used and deposited.

In practice, older banknotes do not always function as a means of payment, as they are outdated and not recognisable by citizens and store staff. As less people use cash, there are also fewer citizens who know what a genuine banknote looks like. This applies especially to older banknotes, which most citizens never or only very rarely come across, and many people may therefore be reluctant to accept older banknotes from the older series.

However, stores are obliged to accept older series of cash, see box 3. This requires staff to recognise and assess the genuineness of cash. It may also, in practice, be difficult or impossible to accept the cash, as secured cash registers and closed checkout systems, which are becoming increasingly widespread, cannot receive older series, see section 3.

In addition, the adjustment of the cash infrastructure in recent years has meant that the older notes and coins cannot be handled by counting machines and ATMs (except for the 1997 series). However, as the banknotes are legal tender, operators across the sector remain obliged to accept and handle the older banknotes and coins. This entails a need for a wide range of procedures and machines combined with costly manual procedures, which is not efficient.

**Recall of older banknotes**

It is not expedient that banknotes of equal validity cannot, in practice, be used equally in society. Moreover, uncertainty about how series of banknotes can be used risks damaging trust in cash in the long term. Against this background, and to support cash as a secure and efficient means of payment, Danmarks Nationalbank is recalling all older Danish banknotes that are legal tender today.

This means, that all banknotes other than the current ones with motifs of Danish bridges and archaeological finds (the 2009 series) will be invalid as tender after 31 May 2025. Consequently, these series of banknotes can no longer be exchanged in banks or used in stores after this date. This includes all older series of banknotes – from the so-called ‘substitution series’ (the 1944 series) up to and including the series with portraits and church art (1997 series).



**In practice, older banknotes do not always function as a means of payment, as they are outdated and not recognisable by citizens and store staff.**

The recall will help maintain a safe and secure cash system and will facilitate the cash handling for stores, banks and cash management companies – also known as cash-in-transit (CIT) companies. It will also support individuals' and businesses' trust in the cash that will be in circulation in Denmark in the future.

It will be expedient to initiate the recall of older series of banknotes as soon as possible. The reason for this is that the process is highly dependent on the handling of cash by the industry and CIT companies. The overall cash infrastructure has been reduced in recent years, one reason being lower demand for cash, see section 3. A further reduction may complicate a recall of older series of banknotes at a later stage.



**The recall will help maintain a safe and secure cash system and will facilitate the cash handling for stores, banks and CIT companies. It will also support individuals' and businesses' trust in the cash that will be in circulation in Denmark in the future.**

#### **The banks must handle the submission of older series**

The analysis also shows that the necessary cash infrastructure is still in place to ensure that individuals and businesses can access and deposit cash today. The banks have also indicated to Danmarks Nationalbank that they currently have a practice that ensures that the handing-in of older banknotes can be handled in the current cash infrastructure. Therefore, they are also able to handle the recall of old banknotes from their own customers. However, there will be differences in how banks practically offer their customers to exchange or deposit cash into an account, see section 3.

Nevertheless, few people will be unable to submit old banknotes via their own bank. This may, for example, be the case for citizens who do not have a basic deposit account in Denmark and foreign citizens. Danmarks Nationalbank will therefore set up banknotes exchange points that will be able to handle these cases. During 2024, Danmarks Nationalbank will communicate the addresses and opening hours of the banknotes exchange points as well as rules and conditions.

#### **The 1000-krone banknote is not necessary to support secure and efficient payments**

Danmarks Nationalbank does not plan to issue a new 1000-krone banknote in connection with the new Danish series of banknotes. A series of banknotes consisting of 50-krone, 100-krone, 200-krone and 500-krone banknotes can support the current and future need for cash as a means of payment.

The 1000-krone banknote is not essential for individuals and businesses to make secure and efficient payments with cash, see section 1 and 2. This is due to the fact that the use of cash in society today, including the few large payments with cash, can be handled without the 1000-krone banknote, and thus without compromising efficiency or negatively affecting the trust in or usability of cash.

As fewer people use cash, fewer individuals are familiar with what a genuine banknote looks like. This also applies to the 1000-krone banknote, which many citizens rarely use for payments.<sup>60</sup> Although the number of attempts at counterfeiting Danish banknotes is still limited, the 1000-krone banknote is subject to attempts at counterfeiting to a greater extent than the other types of banknotes. This could damage trust in cash.

A phasing out of the 1000-krone banknote will also reduce the need for change in stores. This will facilitate the circulation of money for stores without limiting citizens' ability to use cash for payments, see section 2. Simultaneously, anti-money laundering rules set limits for cash payments. Cash payments exceeding kr. 20,000 are not allowed in stores, see box 3. Hence, it is therefore limited how much more cumbersome the largest legal cash payments will be if it is not possible to pay with 1000-krone banknotes.

In addition, the Danish police assess that the 1000-krone banknote is used to a greater extent than other banknotes to support various types of financial crime.

The 1000-krone banknote in the current Danish banknote series will become invalid after 31 May 2025 together with older banknotes. After this date, only the 50-krone, 100-krone, 200-krone and 500-krone banknotes in the current 2009 series of banknotes will be legal tender, see chart 26.

In Greenland, the same series of banknotes are used as in Denmark. When older Danish banknotes and the current 1000-krone banknote become invalid after 31 May 2025, these banknotes will thus also become invalid in Greenland.<sup>61</sup>

When the new series of banknotes are issued from 2028-2029, the current series depicting Danish bridges and archaeological finds will also be phased out after a period, leaving exclusively one valid series of Danish banknotes.

<sup>60</sup> In 2023, one in four citizens had used a 1000-krone banknote within the past year.

<sup>61</sup> The Faroe Islands have their own banknotes, which have the same value and format as the Danish banknotes. The recall of Danish banknotes does not invalidate the Faroese series of banknotes.

CHART 26

These banknotes and series will become invalid after 31 May 2025

## Banknotes that will no longer be legal tender

after 31 May 2025

### 2009 Bridges and archaeological finds

Only the 1000-krone banknote



### 1997 Portraits and church art

All banknotes



### 1972 Portraits and animals

All banknotes



### 1952 Portraits and landscapes

All banknotes



### 1944 The substitution series

All banknotes



## Banknotes that will be legal tender

after 31 May 2025

### 2009 Bridges and archaeological finds

All banknotes except the 1000-krone



To be upgraded in 2025



To be upgraded in 2024



To be upgraded in 2024



Upgraded in 2020

For a complete overview of banknotes being withdrawn from circulation, visit [nationalbanken.dk/futureofcash](http://nationalbanken.dk/futureofcash)



# Like to receive *updates* from Danmarks Nationalbank?

Get the latest news on our publications  
sent straight to your inbox.

To learn more about our news service,  
and to sign up, visit [nationalbanken.dk/en/news-service](https://nationalbanken.dk/en/news-service),  
or scan the QR code.



You can also receive our news as RSS feeds.  
For details, visit [nationalbanken.dk/en/rss-feeds](https://nationalbanken.dk/en/rss-feeds).

# Publications



## NEWS

News is an appetiser offering quick insights into one of Danmarks Nationalbank's more extensive publications. News is targeted at people who need an easy overview and like a clear angle.



## STATISTICAL NEWS

Statistical news focuses on the latest figures and trends in Danmarks Nationalbank's statistics. Statistical news is targeted at people who want quick insights into current financial data.



## REPORT

Reports consist of recurring reports on Danmarks Nationalbank's areas of work and activities. You can find Danmarks Nationalbank's annual report here, among other documents. Reports are targeted at people who need a status and update on the past period.



## ANALYSIS

Analyses focus on current issues of particular relevance to Danmarks Nationalbank's objectives. Analyses may also contain Danmarks Nationalbank's recommendations. They include our projections for the Danish economy and our assessment of financial stability. Analyses are targeted at people with a broad interest in economic and financial matters.



## ECONOMIC MEMO

Economic Memo provides an insight into the analysis work being performed by Danmarks Nationalbank's employees. For example, Economic Memo contains background analyses and method descriptions. Economic Memo is primarily targeted at people who already possess some knowledge of economic and financial analyses.



## WORKING PAPER

Working Paper presents research work by both Danmarks Nationalbank's employees and our partners. Working Paper is primarily targeted at professionals and people with an interest in central banking research as well as economics and finance in a broader sense.

The analysis consists of a Danish and an English version. In case of doubt as to the correctness of the translation, the Danish version will prevail.

Danmarks Nationalbank  
Langelinie Allé 47  
DK-2100 Copenhagen Ø  
+45 3363 6363

The manuscript has been completed 24 November 2023



**DANMARKS  
NATIONALBANK**