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# The role and future of cash

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The role and future of cash

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# The role and future of cash



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# Summary and conclusions

**This study analyses some fundamental questions about the future of cash.** According to the DNB Payments Strategy 2018-2021, the decreasing use of cash is putting pressure on the cash infrastructure. This raises all kinds of questions about the future of cash.<sup>1</sup> Until recently, the downward trend of cash use was mainly a result of citizens' own choices, but since the coronavirus crisis they have also increasingly been forced to pay electronically. In this study we investigate the changing role of cash, the extent to which cash is still needed and how we should deal with its decreasing use. We also investigate whether this decreasing use jeopardises the independence of people who depend on cash, and whether the resilience and, consequently, the smooth operation of the payment system would be reduced if the use of cash as a back-up in the event of disruptions in electronic payments was lost. Our starting point is DNB's current policy, which focuses on the general acceptance of cash, the availability of a network for depositing and withdrawing cash, measures to safeguard the reliability and security of cash, and reducing the cost of cash. This study ties in with the recent report on the position of cash by the National Forum on the Payment System (NFPS).<sup>2</sup> The main stakeholders in the payment system are represented on this Forum to contribute to a socially robust, efficient and secure payment system. The present study builds on the cash trends described in the NFPS report, focusing on the importance of public money in physical and digital form, the significance of the specific properties of cash, the legal framework and the necessity of keeping cash easily accessible and available.

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1 DNB Payments Strategy 2018-2021, [https://www.dnb.nl/en/binaries/DNB%20Payments%20Strategy%202018-2021\\_tcm47-376439.pdf](https://www.dnb.nl/en/binaries/DNB%20Payments%20Strategy%202018-2021_tcm47-376439.pdf).

2 Towards a new vision of cash in the Netherlands, Final Report of the NFPS Task Force for the revision of the NFPS's position on cash, <https://www.dnb.nl/en/news/news-and-archive/nieuws-2020/dnb388945.jsp>.

**The use of cash at points of sale (POS) has declined rapidly, reducing the cash infrastructure and threatening the accessibility and acceptance of cash.** While in 2019 about one third of all POS purchases in the Netherlands were paid in cash (and the remainder by card or contactless), this share had fallen to just over 20% at the end of October 2020, due in part to changes in behaviour by consumers and retailed in response to the coronavirus crisis. The share of cash use in the Netherlands is the lowest of all euro area countries. It is even lower in Sweden and Norway, at 13% and 9%, respectively.<sup>3</sup> It is expected that the proportion of cash payments in the Netherlands will remain structurally low, mainly due to further digitisation.

**Cash is issued by the central bank, which means it is a claim on a public institution.** The exchangeability of private money (non-cash, created and issued by commercial banks) and public money (cash, issued by the central bank) is considered a prerequisite for confidence in the monetary system. Without cash, citizens can no longer claim their credit from a bank. Being public money, cash has a number of important properties. It is legal tender, is generally accepted, it provides immediate security of payment, and it allows for paying without the involvement of third parties and without dependence on central verification. Cash is the only way for people to carry money without being dependent on a bank. It is the core of the cash payment system and an alternative to using the non-cash payment system. Cash is kept as savings to mitigate uncertainty, and functions as a reserve currency in countries outside the euro area. Public money could also be issued in other forms than cash. Together with other central banks in the Eurosystem, DNB is exploring the possibilities of digital central bank money and how this could meet the need for public money, in addition to cash. For now, however, cash is the only form of public money.

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<sup>3</sup> Riksbank.se 13 % in 2018, Norges-bank.no 9 % in 2019.



**Cash also meets a social need because of its specific physical properties.**

It is tangible and countable, making it easy to use. Cash is a value carrier that people can keep with them, and because the value is prominently stated on banknotes and coins, people are more aware of this value. This is particularly important for people in society who have difficulty with abstractions such as non-cash transfers, or have limited access to them (the group of low-literates is estimated at around 2.5 million people). According to an advice from the National Institute for Family Finance Information (Nibud), using cash can help people to stay within a budget and avoid debts, since it means they cannot spend more than what they have on them. People with visual impairments also benefit from the tangibility of cash. Furthermore, the use of cash guarantees privacy to citizens. This makes cash more attractive to criminals, however, which is why it also requires targeted and effective anti-money laundering measures. The ease of use of electronic payments has steadily improved over the years, which has prompted a shift from cash payments to card and contactless payments. In the event of a malfunction in electronic payments (e.g. a large-scale POS-terminal failure or cyberattack), cash is an excellent backup because purchases can continue without the need for central electronic verification. This requires that ATMs continue to operate despite the disruption, however, in order to enable cash withdrawals.

**The availability and acceptance of cash have recently come under pressure due to the sharp decline in the use of cash at the counter.**

With over 99% of the population living within a 5 km radius of an ATM, cash is still easily accessible in the Netherlands. However, the number of ATMs has fallen sharply in recent times. If this number were to fall further this would compromise the back-up function of cash, as there would be too little capacity to meet sudden peaks in demand. Many ATMs have closed temporarily or permanently due to explosive attacks, including many deposit

machines, which is annoying for retailers. The acceptance of cash is also under pressure. While cash is legal tender and should therefore as a rule be accepted at points of sale, retailers are permitted to refuse cash payments provided they clearly inform their customers in advance. While the acceptance level reported by retailers is still high in 2020 (96%, against 97% in 2019), 35% of them actively encourage their customers to pay electronically, or even apply a card-only policy. This trend conflicts with the intention of the European Commission's Recommendation that cash should as a rule be accepted everywhere. Acceptance is under additional pressure because retailers appear to discourage or even refuse cash payments as a measure against the coronavirus. The continuity of banknote transports to ATMs and to and from shops is another point for attention, since increased concentration in the security transports sector means that any disruptions in services could have a major impact on continuity and security.

**DNB's statutory tasks include promoting the smooth functioning of the payment system and ensuring the circulation of banknotes and coins.**

As part of this responsibility, we investigate how to safeguard the continued accessibility and acceptance of cash. The European Commission and the ECB also call on EU Member states to ensure that cash continues to be accessible and widely accepted everywhere. The present study shows that there is still a need for cash, especially in its function as public money, as a fall-back option in the event of a disruption in electronic payments and as an inclusive means of payment for large groups in society. However, the steep decline in the use of cash at points of sale threatens to erode the cash payment infrastructure, with adverse consequences for the accessibility and acceptance of cash.

**That is why we have commissioned an external medium-term study and an advice on the cash infrastructure, in line with the recommendations in the NFPS report.** In principle, the study and the advice will cover the entire cash payments chain (including both banknotes and coins), and the way or ways in which it will be able to meet the requirements of a secure, reliable, accessible and available cash infrastructure in the medium term (i.e. the next 10 years). The study will be conducted in the first half of 2021.

# 1 Introduction

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**DNB is working on an optimally functioning cash chain to keep cash available, reliable, accessible and affordable.** The use of cash at points of sale is decreasing, reducing the cash infrastructure and putting pressure on accessibility and availability. The DNB Payments Strategy 2018-2021 focuses on the general acceptance of cash, the availability of a network for depositing and withdrawing cash, measures to safeguard the reliability and security of cash, and reducing the cost of cash.<sup>4</sup> DNB is also working on improving sustainability in the cash payment chain, for example by using sustainable cotton for banknotes, extending banknote life and building an energy-neutral cash centre. It does so in close cooperation with other central banks in the Eurosystem.

**The decreasing use of cash gives rise to fundamental questions about the significance of cash and its importance:** as legal tender, as a means of payment guaranteeing privacy, as the only form of money that can be carried or kept as savings independently of a bank and as a fall-back option if the electronic payment system fails. Because it is such a straightforward and tangible means of payment, everyone is able to use cash, including people who are unable or less able to handle digital resources, for example because of a disability or because they cannot keep up with the rapid digitisation of society (socially vulnerable citizens). The significance of cash as public money (issued by central banks) versus private money (issued by commercial parties) is also important, in view of the implications for a cash-free society in this respect.

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<sup>4</sup> DNB Payments Strategy 2018-2021, [https://www.dnb.nl/en/binaries/DNB Payments Strategy 2018-2021\\_tcm47-376439.pdf](https://www.dnb.nl/en/binaries/DNB%20Payments%20Strategy%202018-2021_tcm47-376439.pdf).

**This study analyses these fundamental questions about the future of cash.** The emphasis is on developing the social relevance of public money that meets the needs of choice, security, interchangeability and alternative means of payment (i.e. as a fall-back option), thus maintaining the robustness of the payment system. Cash is currently the only form of public money, and its physical form is an important condition for many people in society to be able to pay independently. This study does not address “central bank digital currency” (CBDC), public digital money that could possibly replace, and in any case complement, the role of cash (ECB, 2020). We do not in principle oppose a ‘cashless’ society, however. A key precondition for a society without cash would have to be that there is a proper substitute for the functions that cash currently performs. For the time being, however, this is not the case and as far as public digital money could become such a substitute, this will not be achieved in the short term.

**This study ties in with the recently revised vision on the position of cash of the National Forum on the Payment System (NFPS).**<sup>5</sup> The main stakeholders in the payment system are represented on this Forum to contribute to a socially efficient payment system. In the NFPS report, banks have committed to maintain accessibility and retail organisations have committed to continue to accept cash. At the same time, the NFPS agreed to an external medium-term study and advice, commissioned by DNB, into a robust, secure and socially efficient cash infrastructure in a society with a structurally lower use of cash. The results of the study and the advice (which are expected to be delivered midway 2021) may lead to a review of the NFPS commitments. We have commissioned this study because we foresee that measures are needed to safeguard a smoothly functioning cash payment

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<sup>5</sup> Towards a new vision of cash in the Netherlands, Final Report of the NFPS Task Force for the revision of the NFPS’s position on cash, <https://www.dnb.nl/en/news/news-and-archive/nieuws-2020/dnb388945.jsp>.

system in the future. The present study analyses the role and the use of cash, providing the rationale for the study and advice from the central-bank perspective.

**This study is structured as follows.** Chapter 2 gives a brief description of the current use of cash. For a detailed description of cash-related trends and developments, please refer to the NFPS report. Chapter 3 considers the role and importance of cash, distinguishing between the characteristics of cash in its function as public money (regardless of whether it has a physical or digital form) and the characteristics of cash by virtue of its specific form (i.e. banknotes and coins). Chapter 4 concludes that measures are needed to ensure that cash remains widely accepted (availability) and that consumers and retailers can easily withdraw and deposit cash (accessibility). The commissioned study and advice on the cash infrastructure will shed more light on what action and measures should be taken.

# 2 Cash use in the Netherlands is falling sharply

## 2.1 Use of cash in the Netherlands

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### **Cash still plays an important role in the Dutch payment system.**

Many people use it to make purchases and to pay other people, because it is familiar and widely accepted. The demand for cash is determined by the public and the central bank provides for the public's demand. Commercial banks are an essential link in this process, because they obtain the cash from the central bank and deliver it to the public.

### **Point of sale (POS) payments have been showing a downward trend for a long time.**

In the Netherlands, the share of cash payments at points of sale fell from about 60% to 32% in just seven years' time (Figure 1).

If payments in online shops are also taken into account, this share is even lower, at 29%. It is expected to steadily fall further as a result of ongoing digitalisation. When the 40% limit was reached, the Dutch Payments Association, on behalf of the banks, expressed the ambition that the share of cash payments would fall to 25% in 2025. During the coronavirus crisis, the share of cash payments initially plummeted to a mere 13% in April 2020 and recovered to slightly over 20% at the end of October 2020.<sup>6</sup> This sharp drop was partly due to the fact that many retailers started to discourage or even refuse cash in response to the outbreak of the coronavirus. However, there is no need to discourage or refuse the use of cash to prevent coronavirus contamination, as the probability of transmission of the virus through banknotes is very low, and much lower than for other frequently-touched non-porous objects.<sup>7</sup> The government also speaks of a very small probability that the virus spreads through object surfaces such as money and recommends that cash be deposited on the counter in order to prevent

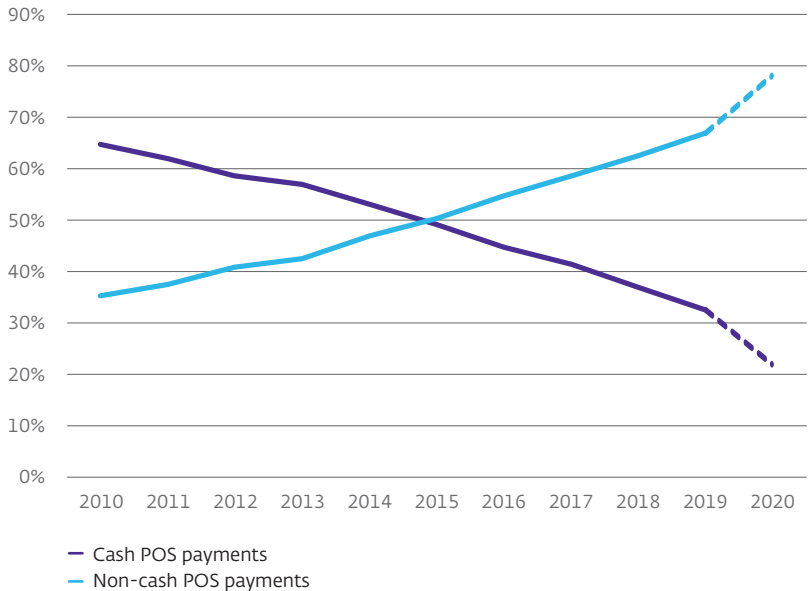
<sup>6</sup> See <https://www.dnb.nl/en/news/news-and-archive/dnbulletin-2020/dnb389694.jsp>.

<sup>7</sup> Bank for International Settlements, Covid-19, cash, and the future of payments, <https://www.bis.org/publ/bisbullo3.htm> and ECB <https://www.ecb.europa.eu/press/blog/date/2020/html/ecb.blog200428-328d7cao65.en.html>.

any spread of the virus through hand contact with the cashier.<sup>8</sup> We expect that many of the changes in payment behaviour in response to the coronavirus crisis will be permanent.<sup>9</sup>

### Figure 1 Share of cash and non-cash payments at points of sale (POS)<sup>10</sup>

Share in % of total number of transactions



<sup>8</sup> RIVM, see <https://www.government.nl/topics/coronavirus-covid-19/frequently-asked-questions-about-coronavirus-and-health>.

<sup>9</sup> See the speech by F. Panetta (ECB), <https://www.ecb.europa.eu/press/key/date/2020/html/ecb.sp201022-d6611b97.en.html>.

<sup>10</sup> DNB. POS payments in 2019 fact sheet and POS payments in the first half of 2020.



**The Netherlands is one of the first euro area countries to face strategic questions about the rapid decline in the use of cash, although this issue is now also becoming topical in other countries.** According to a 2019 ECB study on the use of cash by households in euro area countries, 73% of all POS payments were paid in cash.<sup>11</sup> In the Netherlands, at 34% the share of cash transactions in the total number of POS payments was the lowest in the euro area in 2019, followed by Finland (35%) and Estonia (48%). The share of cash payments was 16% in Denmark (2019), 9% in Norway (2019), 13% in Sweden (2018) and 23% in the United Kingdom (2019).<sup>12</sup> The low shares in these countries, where the payment system is also in an advanced stage of digitalisation, are an indication of how the cash transactions trend is expected to develop in the Netherlands, even if there had been no coronavirus crisis.

## 2.2 Availability of cash in the Netherlands

**The acceptance rate of cash was still high in 2019, but an increasing number of retailers appear to discourage or even refuse it in response to the coronavirus.** While cash is legal tender and should therefore as a rule be accepted at points of sale, retailers are permitted to depart from this principle (see Section 2.6 for a more detailed explanation). In 2020, retailers reported an acceptance of cash in the Netherlands of 96% (2019: 97% in the Netherlands as a whole, against 93% in Amsterdam).<sup>13</sup> Retailers and institutions accept cash because customers prefer to use it as a means of payment, but since the variable costs of electronic transactions are lower, some retailers tend to discourage the use of cash and switch to card

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<sup>11</sup> See <https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.pr201202-0645677cf6.en.html>.

<sup>12</sup> Source: nationalbanken.dk, Norges-bank.no, riksbank.se, bankofengland.co.uk.

<sup>13</sup> See <https://www.dnb.nl/en/news/news-and-archive/dnbulletin-2020/dnb391014.jsp>, Panteia, Update on cash acceptance at points of sale, measured in October 2020.

18 payments-only. The same applies to municipalities and pharmacies.<sup>14</sup> Recent research shows that 35% of retailers actively encourage their customers to pay electronically rather than in cash, for example by putting up signs in the shop, or by having the cashier ask customers to pay by card.<sup>15</sup> Retailers will continue to accept cash for longer if they can simply and safely deposit the cash and if they are credited the equivalent value quickly and at acceptable rates. A high degree of acceptance determines the availability of cash as a means of payment for citizens. We must prevent customers from being pushed towards card-only payments, losing their freedom of choice as a result, and retailers from having to take costly actions to reverse their previous refusal of cash.

**In May 2020, retail organisations in the NFPS again committed to continue to accept cash.** While the Dutch Retail Trade Platform (until the end of this year when it stops activities) and the SME umbrella organisation (MKB-Nederland) are represented on the NFPS, the organisations representing e.g. apothecaries, opticians, theatres and municipalities are not. This makes it difficult to reach agreements with all retail organisations. The Panteia study shows that many retailers nevertheless have started to discourage the use of cash. Since governments have given cash the status of legal tender, they should at least be willing to set the example and continue to accept cash themselves, including in municipalities and in public education, for example. Exceptions could be made for those situations where security is at stake, such as on buses and trams, provided that travellers can then buy or charge their ticket using cash in an easy and accessible manner elsewhere. Enforcing the commitments made in the NFPS has proved difficult.

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<sup>14</sup> Municipalities and pharmacies that introduced a pin-only policy have been asked to reverse this and continue to accept cash. In many schools, universities and in public transport, it is hardly possible to pay in cash anymore. Some retailers have switched to electronic payments only.

<sup>15</sup> Idem, Panteia, October 2020, p.11.

**The Dutch House of Representatives and the Minister of Finance have acknowledged the importance of broad acceptance of cash.** In January 2019, the House of Representatives declared itself in favour of the obligatory acceptance of cash at municipalities and pharmacies.<sup>16</sup> Then, in June 2020, the House of Representatives unanimously adopted a motion calling on the government to ensure that cash remains widely accepted as a means of payment in our society, and to take measures if acceptance continues to fall structurally.<sup>17</sup> In response to parliamentary questions, the Minister recently stated that it is important for the smooth functioning of the payment system that the acceptance of cash at points of sale continues to be high.<sup>18</sup>

**To maintain high acceptance levels at points at sale, retailers need cost-efficient solutions, improvements in cash management and security.**

We promote cost savings in the cash chain as part of our statutory task of ensuring an effective payment system in the Netherlands. Market parties offer products and services to optimise cash processing at points of sale and promote security, such as cash register systems, smart safes and direct crediting of cash revenue to the retailer's account. In some cases, the government partly compensates small entrepreneurs for security costs as a result of robbery or damage.<sup>19</sup>

<sup>16</sup> Dutch House of Representatives, 15 and 22 January 2019 (Dutch text).

<https://www.tweedekamer.nl/kamerstukken/stemmingsuitslagen/detail?id=2019P00565>.

<sup>17</sup> Motion by Mr Alkaya on broad acceptance of cash as a means of payment (35107-7), June 2020.

<sup>18</sup> See the answer to question 5 (Dutch text) <https://www.rijksoverheid.nl/documenten/kamerstukken/2020/10/01/beantwoording-kamervragen-over-het-met-contant-geld-kunnen-blijven-betalen-in-winkels>.

<sup>19</sup> See: <https://business.gov.nl/subsidy/violent-crime-prevention-measures/> and <https://schadefonds.nl/en/conditions-for-obtaining-compensation/>. See for example: <https://subsieregister.denhaag.nl/> (in Dutch); <https://decentrale.regelgeving.overheid.nl/cvdr/XHTMLoutput/Actueel/Ede/CVDR341448.html>.

## 2.3 Accessibility of cash in the Netherlands

**Fewer ATMs as a result of the decreasing use of cash.** The number of ATMs has fallen sharply in recent years and continues to decline with the migration of the separate ATMs of the three largest Dutch banks, ING, Rabobank and ABNAMRO, to the joint Geldmaat network.<sup>20</sup> This represents a significant cost reduction, since the banks no longer need to operate their own ATMs in close proximity to those of the other banks. Once the migration has been completed, the total number of ATMs for withdrawing and depositing banknotes and coins will amount to 5,248, including 3,850 ATMs for the withdrawal of banknotes.<sup>21</sup> Customers of ING, Rabobank and ABNAMRO can withdraw and deposit money at the Geldmaat ATMs. Customers of other banks can withdraw money from these ATMs too and, depending on the agreement between their bank and Geldmaat, also deposit money. Geldmaat receives a fee from the other banks via card networks such as MasterCard and VISA. In addition to Geldmaat, there are also some independent ATM operators.<sup>22</sup> Retailers either deposit their money at an ATM or have it collected by a security transport company (Brink's, Smart Safe Company RCCS and some smaller companies) for processing.

**A 5 km accessibility standard applies in the Netherlands, based on an NFPS agreement.** Banks aim to ensure that as many citizens and businesses as possible in the Netherlands have access to an ATM within a 5 km radius. Thanks to this standard, there are enough ATMs in the Netherlands to cater for the current use of cash. The standard was established in 2006, forced by

<sup>20</sup> As at year-end 2019, the banks and Geldmaat provided 4,805 cash withdrawal machines, against 7,099 in 2014.

<sup>21</sup> The final situation of the joint ING, Rabobank and ABNAMRO Cash2020 project: For banknotes: 2,700 cash withdrawal machines, 1,150 cash withdrawal and deposit machines and 620 Sealbag Machines (packed deposits). Some 170 machines for coin withdrawals and 608 for coin deposits will be installed.

<sup>22</sup> Volksbank recently closed a large number of ATMs. Its customers can withdraw cash from the Geldmaat network. The independent ATM operators, including GWK, Yourcash, Euronet and Inzretail, operate a total of about 900 ATMs.

Crone's legislative proposal (Scholten, 2017, p. 80), and is primarily intended for rural areas. In urban environments, however, one ATM per 5 km is by far insufficient. The NFPS monitors the availability and accessibility of ATMs and facilities to deposit cash on a person's own bank account on a yearly basis. The three major banks have made commitments in the NFPS on annual targets for the availability of ATMs for the withdrawal and deposit of banknotes and coins. In mid-2020, 99.5% of the population was able to withdraw cash within a distance of 5 km and 94.9% of the population/companies could deposit cash within this distance.<sup>23</sup>

**The security of ATMs is of great importance and requires ongoing attention.** The increase in explosive attacks on ATMs (for withdrawals and deposits) has led to unsafe situations and inconvenience for citizens and retailers. In an immediate response to these attacks, banks have temporarily – and in some cases permanently – closed their ATMs. The banks and Geldmaat are working with the police, the Ministry of Finance and DNB to prioritise structural improvements to the security of ATMs. Examples include adjustments to physical security, improved systems for rendering banknotes unusable and relocation of ATMs, in order to bring the services back to the necessary level as quickly as possible.

**In the event of a crisis or disruption of electronic payments, there may be a sudden peak in the demand for cash.** For example, the financial crisis of 2008 led to a sharp increase in the demand for banknotes. Immediately after the outbreak of the coronavirus, demand for banknotes initially increased (probably due to feelings of uncertainty) and then decreased again due to a combination of fewer purchases and retailers who no longer wanted

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<sup>23</sup> Based on postcode areas, see the Availability Monitor <https://www.dnb.nl/en/payments/other-tasks/national-forum-on-the-payment-system/publicaties-mob/index.jsp>.

to accept cash.<sup>24</sup> A disruption in the electronic payment system (e.g. a large-scale POS terminal failure or a cyberattack) could also incite a sudden peak in the demand for cash. People do want to keep making purchases, especially for the necessities of life, and this becomes all the more important if a disruption lasts longer. Of course, it is essential that ATMs continue to function in such a case, since otherwise only the cash already in circulation could be used.

**Too much concentration could make the Netherlands dependent on a single payment system. This could jeopardise the continuity of payments.**

Because cash payments are analogous, they are a perfect fall-back option in the case of disruptions in electronic payments. The National Anti-Terrorism and Security Coordinator (NCTV) has noted that critical processes in the Netherlands are highly dependent on digital systems and that we are often insufficiently prepared for digital disruption.<sup>25</sup> The NCTV therefore stresses the importance of analogous alternatives to these critical processes, and cash is such an alternative. The Scientific Council for Government Policy (WRR) also stressed that we should be prepared for digital disruption by ensuring there are alternatives, such as cash.<sup>26</sup> The European Systemic Risk Board (ESRB) also warns against the risks of disruptions in digital systems as a result of cyberattacks and argues that this could potentially threaten financial stability and possibly even cause a systemic crisis.<sup>27</sup> The coronavirus crisis has demonstrated that conceivable crises actually occur at times.<sup>28</sup>

<sup>24</sup> [https://www.ecb.europa.eu/stats/policy\\_and\\_exchange\\_rates/banknotes+coins/circulation/html/index.en.html](https://www.ecb.europa.eu/stats/policy_and_exchange_rates/banknotes+coins/circulation/html/index.en.html), Dutch Payments Association, <https://www.betalvereniging.nl/en/actueel/nieuws/betaaljournaal-3/>.

<sup>25</sup> Cyber Security Assessment Netherlands (CSAN) 2019 of the National Anti-Terrorism and Security Coordinator (NCTV), June 2019, <https://english.nctv.nl/topics/cyber-security-assessment-netherlands/news/2019/09/11/csan-2019-disruption-of-society-looms-ahead>.

<sup>26</sup> WRR (2019), Preparing for digital disruption.

<sup>27</sup> ESRB, Systemic cyber risk, February 2020.

<sup>28</sup> In 2006, a DNB study on the impact of a pandemic (H5N1) warned that it is only a matter of time before a virus mutates in such a way that humans can infect each other, and that a global flu pandemic could have far-reaching economic consequences. See [https://www.dnb.nl/binaries/dm2006-1\\_tcm46-147280.pdf](https://www.dnb.nl/binaries/dm2006-1_tcm46-147280.pdf).

In addition, there are also crises that are not (or no longer) conceivable but which society can prepare for with resilient systems (Spaanderman, 2018).

**With the current number of ATMs in the Netherlands cash could function as a back-up means of payment, but this number should not fall any further.** In order for cash to function as a back-up means of payment, it must be able to accommodate sudden peaks in demand. This requires sufficient ATMs and sufficient capacity to refill the machines more frequently. According to a model calculation by DNB, after the migration to Geldmaat the number of ATMs will be just enough to allow cash to function as a backup for about half the value of all POS payments.<sup>29</sup> This means all households in the Netherlands would be able to withdraw an amount of, say, EUR 50 within the first two days, which would cover daily groceries and other basic necessities, but not all expenses.<sup>30</sup> A daily withdrawal limit per bank card may be necessary to give all people the opportunity to withdraw cash and, in addition, security transports must be scaled up in order to refill the ATMs. These preconditions indicate that a further decrease in the number of ATMs would jeopardise the back-up function of cash, and that is why DNB regards a number of about 4,000 ATMs as the minimum to ensure adequate access to cash services. Compared to the other euro area countries, the number of ATMs per inhabitant is lowest in the Netherlands.<sup>31</sup> Although the Netherlands has a high population density and low use of cash, the available capacity per inhabitant is relevant for the back-up function of cash. Cash as a back-up works most efficiently if people already have a small amount of cash at home or, preferably, in their pockets. This would allow

<sup>29</sup> First results from an internal model, see "Cash as a fall-back option for POS payments". DNB works together with chain partners Geldmaat and Brink's on a model for calculating capacity.

<sup>30</sup> Source: <https://www.nibud.nl/consumenten/wat-geeft-u-uit-aan-voeding/>.

<sup>31</sup> The number of Geldmaat ATMs after migration equals 221 ATMs per 1 million inhabitants (275, if third-party ATMs are also included). The ratio in Sweden was 264 (2018), while cash use was significantly lower; the ratio in Denmark was 401 (2018), also with lower cash use.

them to shop the basic necessities in the first few days of a crisis situation and it would also relieve the pressure on the required capacity of ATMs.<sup>32</sup> DNB research shows that by far the majority of Dutch people carried banknotes (83%) and coins (90%) with them in 2019.<sup>33</sup>

## 2.4 Cash processing and security transports in the Netherlands

**For the sake of efficiency, money processing (counting, sorting, checking and recirculating) is performed largely decentralised by banks in the Geldmaat network and Brink's.** This saves many security transports.

Moreover, it appears that a large proportion of demand per denomination per bank corresponds locally with the other banks' offerings. DNB currently performs a small share of these money processing activities, and checks banknotes regularly for authenticity by checking the secret central bank security features. An additional advantage of money processing at different locations and by different operators is that it makes the money processing infrastructure more robust in the event of disruptions. At the same time, however the money processing infrastructure is shrinking due to the decreasing use of cash. This means we must find the right balance between cost savings and maintaining continuity.

**Maintaining the continuity of security transports in the Netherlands is important, also from a security perspective.** This concerns the continuity of security transports to ATMs as an essential element to ensure the accessibility of cash, and the continuity of security transports to and from retailers as an essential element to ensure the availability of cash. If a

<sup>32</sup> See p.15-16 of the NFPS report; See the WRR report 'Preparing for digital disruption' (2019), which includes the recommendation to always carry some cash in your pocket (p. 81). Nibud also recommends that everyone should have a small amount of cash at home. See (in Dutch) <https://www.nibud.nl/beroepsmatig/help-ik-mis-contant-betalen/>.

<sup>33</sup> See <https://www.dnb.nl/en/news/news-and-archive/DNBulletin2019/dnb383914.jsp>.



security transport company would suddenly stop their services due to e.g. bankruptcy, this could lead to accumulation of cash at points of sale and retailers would have to deposit large sums of cash themselves. This would lead to unsafe situations. The continuity of security transports is also important for the timely refill of ATMs to ensure sufficient availability of cash. The security transports market for ATM refills is small, with a limited number of operators. Brink's currently provides 100% of the supply of all ATMs for all of the banks.<sup>34</sup> The security transports market for retailers is small, and Brink's has by far the largest market share. The limited number of operators in these markets require that agreements be made to ensure the continuity of security transports.

**Continuity can be ensured through good cooperation between DNB and Brink's in the field of business continuity planning and by informing each other well in advance about changes in continuity.** This has also been addressed in the NFPS.<sup>35</sup> Continuity can be strengthened by closer cooperation between Brink's and Geldmaat, for example in the area of back-up. DNB needs to have knowledge of the continuity plans of market operators throughout the chain in view of its task to ensure the smooth operation of the payment system.

## 2.5 Impact on the cost development of cash

**Many retailers experience lower payment costs as a result of decreasing cash use.**<sup>36</sup> In recent years, POS payments in the Netherlands have shifted from mostly cash to mostly non-cash payments, which is also due to card payment promotion campaigns. Electronic payments have become relatively

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<sup>34</sup> ATMs from some of the independent ATM operators are refilled by the retailers themselves, e.g. those operated by Yourcash.

<sup>35</sup> NFPS report, p. 57.

<sup>36</sup> See the NFPS report for a more detailed description and an indication of the costs of payments.

more attractive and convenient for many people, in terms of speed, price, and ease of use (e.g. contactless payments, smartphone payments). Banks and retailers are also nudging customers towards electronic payments (e.g. the signs "Debit card? Yes, please!"). As a result, the average cost of a card transaction is now lower than that of a cash transaction. The total costs of payments for retailers will continue to go down along with a further decline in the use of cash, but since part of the infrastructural costs of cash are fixed and cannot be reduced to the same degree, the cost savings as a result of the ongoing shift to electronic payments will become smaller.<sup>37</sup> Payers and payees together determine the success of a means of payment. The less consumers use cash, the more attractive it becomes for retailers to stop accepting it. A decrease in acceptance rates then leads to less use, which in turn could lead to decreased availability of withdrawal and deposit options, which in turn accelerates the downward trend.

**The decreasing use of cash has led to lower costs for banks.** On the one hand, costs are falling because ATMs are used less and therefore require less frequent refilling, and because the number of ATMs have been reduced. On the other hand, the costs for securing ATMs are rising. Since part of the infrastructural costs of cash are fixed, they account for an increasing proportion of total costs due to the decreasing volume. As indicated above, a further reduction in the number of ATMs would jeopardise the back-up function of cash. Consequently, efforts to bring down the costs of ATMs should not be realised by reducing the number of ATMs even further, and it may be better to regard fixed costs as the cost of cash availability. The lower number of cash payments is not an isolated trend, however. Cash payments are replaced by electronic payments, which do not or hardly bring additional

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<sup>37</sup> E.g. the costs for deposits and smart safes (a safe in which the shopkeeper deposits cash that is credited immediately).

costs for banks but instead generate revenues. Banks stand to profit from decreasing use of cash, even if the costs per cash transaction increase.

## 2.6 Legal aspects of cash

**The issue of banknotes by DNB and the other central banks in the Eurosystem is demand-driven and, in principle, without any quantitative restrictions on the demand from banks (and indirectly from the public).**

Under the Treaty on the Functioning of the European Union (EU Treaty), the ECB and the national central banks have the right to issue banknotes.<sup>38</sup> The issue of banknotes is a joint activity within the Eurosystem. The total value of euro banknotes in circulation is allocated to the national central banks and the ECB and the monetary income is pooled.

**As part of its statutory tasks, DNB promotes the smooth functioning of the payment system and ensures the circulation of banknotes and coins.**

In doing so, DNB must act in accordance with the principle of an open market economy with free competition. These statutory tasks are based on the EU Treaty, the ESCB Statute and the Bank Act.<sup>39</sup> Promoting the smooth functioning of the payment system also includes promoting a robust infrastructure, which is secure, reliable and efficient, with DNB working on strengthening the payment system's resilience against cyber risks.<sup>40</sup>

**In the Netherlands, the accessibility of cash is embedded in laws and regulations only to a limited degree (Scholten, 2017).** The Payment Accounts Directive (PAD) could provide a starting point. This EU Directive

<sup>38</sup> Article 128(1) of the EU Treaty DNB is probably not obliged to issue banknotes.

<sup>39</sup> Article 128 of the EU Treaty, Articles 3.1 and 16 of the ESCB Statute, Sections 2(3), 3(1)(d) and (e), 4(1)(b) and 9 of the Bank Act and underlying decrees such as the Royal Decree pursuant to which DNB also has the tasks of ensuring the circulation of coins and monitoring the authenticity and fitness of euro banknotes and coins (Bulletin of Acts, Orders and Decrees, 2016-508).

<sup>40</sup> See DNB Payments Strategy 2018-2021.

obliges Member States to ensure that banks offering payment accounts to consumers must also offer a basic payment account to citizens who request (and are entitled to) such an account, so that they have access to at least the basic functions of a payment account. These basic functions include depositing and withdrawing cash to and from the basic payment account, but only to the extent that the bank also offers these services to customers with a regular payment account. The Financial Supervision Act (*Wet op het financieel toezicht – Wft*), in which the PAD is implemented in the Netherlands, does not stipulate that the delivery of cash services is mandatory for all banks.<sup>41</sup> As a result, there are banks that do not have to provide cash services to customers with a basic payment account because they do not offer such services to their regular customers either. However, the Directive allows Member States to “establish an obligation requiring credit institutions [...] to provide additional services, which are considered essential for consumers based on common practice at national level, with a payment account with basic features.”<sup>42</sup>

**Cash is legal tender and should therefore as a rule be accepted at points of sale.**<sup>43</sup> According to the European Commission’s Recommendation (2010/191/EU), legal tender means that euro banknotes and coins should not be refused in the event of a payment obligation, unless parties have agreed another means of payment, and that a refusal is only possible for reasons of good faith, e.g. if a shopkeeper does not have enough change.<sup>44</sup> There are two exceptions, however. Firstly, cash payments may be refused if specific

41 Section 4.3.1.8 of the *Wft*. The Dutch Authority for the Financial Markets (AFM) supervises banks’ compliance with this.

42 Article 17(2) of the PAD (2014/92/EU).

43 Under Article 128(1) of the EU Treaty, the euro banknotes issued by the ECB qualify as legal tender in all Member States whose currency is the euro. This article also stipulates that only these notes qualify as legal tender. According to Regulation (EC) 974/98, this also applies to the euro coins issued by the Member States. See also Scholten (2017, p.87).

44 Commission Recommendation of 22 March 2010 on the scope and effects of legal tender of euro banknotes and coins (2010/191/EU).

regulations apply, such as restrictions to prevent money laundering.<sup>45</sup> Secondly, cash payments may be refused if specific agreements are in place, for example if the payer and the payee have agreed that cash payments are not permitted.

**Dutch law is based on the provision that the payment of a sum of money is paid in common money, which is primarily understood as legal tender, i.e. cash. This provision is a rule of law, which may be derogated from by agreement in the situations described in the above Recommendation.**

**The European Court of Justice has the authority to interpret the concept of legal tender.** This explains why retailers in the Netherlands are permitted to refuse cash, based on the principle of freedom of contract, provided they have clearly notified their customers in advance (for example by means of a sign stating that high denominations are not accepted, or a card-only sign). Yet, this practice is at odds with the status of cash as legal tender as recommended by the European Commission (Scholten, 2017, p. 104). The European Commission does not consider permanent refusal to be acceptable.<sup>46</sup> Non-acceptance of cash is also a hindrance to people who depend on cash (vulnerable groups, some tourists, or due to circumstances such as a lost debit card or disruptions in the electronic payment system). The NFPS says the following regarding the refusal of cash: "The NFPS considers it unreasonably onerous for consumers if cash payments are refused in situations in which no other provider of a similar product or service is available in practice."<sup>47</sup> If a few small retailers do not accept cash, this will not have a significant impact on the smooth operation of the payment system. However, an increasingly larger share of retailers refusing

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<sup>45</sup> For example, the Dutch legislative proposal to prohibit cash payments of over EUR 3,000 to professional parties.

<sup>46</sup> [https://ec.europa.eu/commission/presscorner/detail/en/MEMO\\_10\\_92](https://ec.europa.eu/commission/presscorner/detail/en/MEMO_10_92).

<sup>47</sup> <https://www.dnb.nl/en/news/news-and-archive/nieuws-2017/dnb366064.jsp>.

cash would have an adverse impact on its operation and harm the status of cash as legal tender and as an accepted means of payment. The European Commission could still demand that the Dutch government complies with the Recommendation on acceptance of cash. The European Court of Justice has the authority to interpret the concept of legal tender.<sup>48</sup> In the Euro Legal Tender Expert Group (ELTEG) the Eurosystem and the European Commission will examine how the legal tender status of cash could be strengthened, at the request of the European Consumer Organisation (Bureau Européen des Unions de Consommateurs – BEUC). This organisation calls for measures to ensure the accessibility and acceptance of cash, including a right for consumers to pay in cash.<sup>49</sup> The Euro Retail Payments Board, a European-level stakeholder forum chaired by the ECB and comparable to the NFPS, acknowledges that the accessibility of cash is important and will investigate this further.<sup>50</sup> In its Retail Payments Strategy, the European Commission states that at the end of 2021, further to these investigations, it may decide to take appropriate measures to protect acceptance and availability of cash.<sup>51</sup>

**Restrictions on the acceptance of cash are at the expense of the quality of cash as a means of payment and store of value.** If cash is no longer accepted, confidence in cash as legal tender and as a commonly accepted means of payment will also decrease. This is particularly true if government bodies such as municipalities refuse the money created by the government itself (Siekman, 2018). It is understandable that the use of cash (or certain denominations) may sometimes be restricted in particular situations for

48 Case law on this matter is scarce. Disadvantaged parties can go to court to get a ruling on the legal tender status of cash, a Dutch judge will then have to go to the European Court of Justice. See for example the case concerning the payment of licence fees in Germany, <http://curia.europa.eu>, cases C-422/19 and C-423/19.

49 Cash versus Cashless: Consumers need a right to use cash, see <https://www.beuc.eu/publications/cash-versus-cashless-consumers-need-right-use-cash/html>.

50 <https://www.ecb.europa.eu/paym/groups/erpb/html/index.en.html>.

51 Retail Payments Strategy for the EU (COM(2020) 592 final, p.14 ([https://ec.europa.eu/info/publications/200924-digital-finance-proposals\\_en#retail](https://ec.europa.eu/info/publications/200924-digital-finance-proposals_en#retail))).

security reasons, but if such restrictions are applied increasingly often, this could damage confidence in the acceptance of cash. Another restriction on cash payments follows from the government's approach to combat money laundering.<sup>52</sup> A legislative proposal aims to combat money laundering and crime in the Netherlands by prohibiting cash payments at points of sale for amounts of EUR 3,000 and over. While it is important to combat money laundering, this should not unnecessarily restrict the legitimate use of cash.<sup>53</sup>

**Several countries have introduced regulations to maintain accessibility and acceptance of cash, or are considering to do so. This mainly concerns countries where new technologies are easily embraced.**

In Sweden, the fact that the private sector had become increasingly dependent on a single payment method meant that the back-up function of cash was in jeopardy. The Riksbank – the central bank – had increasing difficulty in finding a crisis-proof solution and this prompted the government to reconsider the accessibility and availability of cash. The Riksbank therefore concluded that *“cash needs to be both protected and supplemented with a digital alternative”* and that *“there shall be enough cash in case the electronic systems break down”*.<sup>54</sup> The Swedish government therefore passed a law requiring the largest banks to continue to provide adequate access to cash and requiring the central bank to have sufficient locations for professional parties to obtain banknotes.<sup>55</sup> It considered imposing this legal obligation to all banks, whether or not on the basis of outsourcing, but eventually decided to

52 The legislative proposal has been put up for consultation (Dutch text) <https://www.internetconsultatie.nl/wetplanvanaanpakwitwassen>.

53 See DNB's press release <https://www.dnb.nl/en/news/news-and-archive/Persberichten2019/dnb384803.jsp>. See also the ECB's opinion (December 2019), [https://www.ecb.europa.eu/ecb/legal/pdf/en\\_con\\_2019\\_46\\_f\\_signed.pdf](https://www.ecb.europa.eu/ecb/legal/pdf/en_con_2019_46_f_signed.pdf).

54 Economic Commentaries, Future money and payments, 15 October 2020, <https://www.riksbank.se/en-gb/press-and-published/notices-and-press-releases/notices/2020/money-and-legislation-need-to-be-adapted-to-digitalisation/>.

55 [https://www.riksdagen.se/sv/dokument-lagar/arende/betankande/skyldighet-for-kreditinstitut-att-tillhandahalla\\_H701FiU29](https://www.riksdagen.se/sv/dokument-lagar/arende/betankande/skyldighet-for-kreditinstitut-att-tillhandahalla_H701FiU29). The 25 km radius requirement obliges banks to place additional ATMs in rural areas.

restrict the scope to the largest six banks. The Riksbank also asked the government to reconsider and strengthen the concept of legal tender.<sup>56</sup> Norway has a law requiring banks to offer cash services for both regular use and in situations of a sudden rise in demand for cash, for example due to a large-scale POS terminal failure. The law requires banks to provide a back-up function, so that the public can continue to pay in the event of disruptions in the electronic payment system. The rationale for imposing this requirement on the banks is that they have the privilege to create money and attract funds from the public, and that it ties in with their essential role in the payment system. In the UK, proposals have been drafted for measures to maintain accessibility.<sup>57</sup> Norway and Denmark have a legal obligation to accept cash for retailers, and the USA are also considering this (see overview in Annex 1).

**The ECB's cash policy states that cash should remain generally available and accepted as a means of payment and savings in all euro area countries.**<sup>58</sup>

The Eurosystem has the responsibility to ensure that risk-free payment options continue to be available to everyone free of charge.

This includes safeguarding the accessibility of cash.<sup>59</sup> In a legal opinion on legislation in Sweden, the ECB specifically states that EU Member States should take appropriate measures to ensure that banks provide adequate access to cash services, both withdrawals and deposits, to ensure the

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56 Riksbank Governor S. Ingves: "If it were to be established by law that one was forced to accept cash in Sweden, more of us would probably choose to have cash in our wallets." (idem 56). Recently, the Riksbank also addressed the parliament through the media to strengthen the legal tender status of cash, because it is concerned that banks and retailers can now 'negotiate' this status by simply refusing cash. The Riksbank points out that this is at the expense of people who depend on cash payments and jeopardises the back-up function of cash for crisis situations. <https://www.aftonbladet.se/debatt/a/LA1zd9/stark-skyddet-for-vara-kontanter-riksdagen>.

57 The Budget announces that the government will bring forward legislation to protect access to cash and ensure that the UK's cash infrastructure is sustainable in the long-term.

<https://www.gov.uk/government/publications/budget-2020-documents/budget-2020>.

58 See [https://www.ecb.europa.eu/euro/cash\\_strategy/html/index.en.html](https://www.ecb.europa.eu/euro/cash_strategy/html/index.en.html).

59 See the speech by F. Panetta, <https://www.ecb.europa.eu/press/key/date/2020/html/ecb.sp201022-d661mbeg7.en.html>.



continued availability of cash.<sup>60</sup> The ECB considers it important that cash is available to all groups in society and is accepted at points of sale. The ECB also states that customers must be able to make a reasonable number of cash withdrawals free of charge at ATMs of their own bank.<sup>61</sup> The Bank of Finland takes an even more radical stance. It argues that citizens have a right to free cash withdrawals, reasonably once every week, because people need to have access to their own money, not just in the sense of being able to spend it, but also in the sense of being able to keep it with them. Moreover, a bank balance is a debt of the bank to the customer and it would be difficult to explain if the customer had to pay to get back their money.<sup>62</sup> The rapid decline of cash use in the Netherlands must be considered within the context of the Eurosystem. While every euro area country has an individual responsibility to ensure the availability of cash, developments in the other Euro area countries must also be considered. The Netherlands could well be a trailblazer or set an example in terms of policy for the other countries.

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60 Opinion of the ECB of 26 November 2019 on the requirement for certain credit institutions and branches to provide cash services (CON/2019/41) [https://www.ecb.europa.eu/ecb/legal/pdf/en\\_con\\_2019\\_41\\_f\\_sign.pdf](https://www.ecb.europa.eu/ecb/legal/pdf/en_con_2019_41_f_sign.pdf).

61 Letter from the ECB President to Mr Giorgos Georgiou, MEP, on access to cash, 24 January 2020, letter (QZ-054) <https://www.ecb.europa.eu/pub/pubbydate/html/index.en.html>.

62 Bank of Finland (2018), five principles for access and use of cash (freely summarised): 1) Commercial banks are obligated to ensure the provision of cash services to their customers; 2) customers are entitled to make a reasonable number of cash withdrawals from their accounts at no charge, for example once every week; 3) small businesses should primarily be viewed as private customers with regard to their use of cash services; 4) cashback for all retail store customers; 5) cash must at the very least be accepted as payment in circumstances where citizens use services critical for their well-being, especially if there are no alternative options. <https://www.suomenpankki.fi/en/media-and-publications/speeches-and-interviews/2018/tuomas-valimaki-maksamisen-murros-helsinki-28.11.2018/>.

# 3 Cash meets essential needs

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## 3.1 Public money and private money

**Society has a need for money as a medium of exchange, as a store of value and as a unit of account.** These needs are met with public money and private money. Public money, also known as basic or central bank money, is issued by central banks. Private money is issued by commercial banks under statutory conditions. Public and private money is mutually interchangeable. Money is practical because the moment of consumption of goods or services often does not coincide with the moment of obtaining money from labour or sales. Money solves uncertainty about the creditworthiness of the parties because the exchange involves a final exchange of equivalent values, provided the trust in the value of the money is high. Money can also be saved to enable more production and consumption in the future and is thus a way of mitigating uncertainty (a buffer).

**The monetary system comprises means of payment and payment systems.** A payment system consists of instruments, procedures and a transfer system that facilitates the circulation of money. There are public and private payment systems. Means of payment are the means used by citizens and businesses to make payments. Cash is a public means of payment and as a value carrier, it forms the core of the cash payment system. Private parties contribute to the transfer and distribution of cash in this system, collectively called the cash chain. Together with security transport companies, banks are responsible for the distribution of cash to the public, for example through ATMs. Retailers deposit cash at banks themselves or through security transport companies. To achieve greater efficiency, convenience and security, the chain is continuously improved with innovations such as better ATM interfaces, methods for easier depositing and smart safes for retailers that allow secure depositing and faster crediting.

**There are currently two forms of public money: physical and electronic. Citizens and businesses can only use physical public money in the form of banknotes and coins.** Banknotes are issued by DNB and the other central banks in the Eurosystem, while coins are issued in the Netherlands by the Ministry of Finance. The electronic form of public money, central bank money, is offered exclusively to banks, clearing and settlement organisations and investment firms. It is held via bank accounts with DNB in the Eurosystem interbank payment system TARGET2.<sup>63</sup> This money is created through lending to banks in exchange for collateral. Banks use TARGET2 to settle the claims that arise when customers of different banks pay each other. They use their TARGET2 balance to buy cash from DNB, and the cash deposited at DNB is credited to their balance again. In tandem with the other central banks in the Eurosystem, DNB is exploring the possibilities of issuing central bank digital currency (CBDC) for the use of citizens and businesses (see Wierts and Boven, 2020, and ECB, 2020). DNB welcomes the continued use of a public form of money and therefore has a favourable attitude towards CBDC. The importance of providing a digital form of public money for general use increases with the declining use of cash, both in order to maintain access to public money and for the contribution of CBDC to the smooth functioning of the payment system. After all, cash is no longer able to take over the entire electronic payment system in the event of disruption. However, CBDC also poses risks to the monetary system, and its design therefore requires careful choices and considerations.

**Being public money, cash is an accounting claim on the central bank.**

Since the abolition of the gold standard, banknotes are no longer exchangeable for gold. They can only be exchanged for other banknotes or denominations (which is relevant in the exchange of outdated banknotes).

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63 See <https://www.ecb.europa.eu/paym/target/target2/html/index.en.html>.

As a cash issuer, the central bank is responsible for ensuring confidence in this money and in its stable value. These qualities are essential for the functioning of money. The issue of cash also generates seigniorage, but that is not a policy objective for DNB.<sup>64</sup> Unlike gold, banknotes and coins have a very low intrinsic value. Confidence in the authenticity of the product is therefore based on confidence in the quality of banknotes and coins, and in the issuer. The Eurosystem therefore ensures that the quality of banknotes and coins is high and safeguards this quality through continuous product improvements.<sup>65</sup> The Dutch public's confidence in the authenticity of euro banknotes is high, and growing (Van der Horst et al., 2020). Confidence in the value of the euro is achieved through the pursuit of price stability (De Haan, 2016). Public money issued by the central bank is the most secure form of money, because a central bank will never actually go bankrupt.

**Private money is issued by banks and is held in the bank accounts of customers. This form of non-cash money is created by a customer's deposit of cash into their bank account, and by a bank's loans to its customers.** Payments (by debit card in a shop, online via iDEAL or via transfer by a payment order) are debited from the payer's payment account and credited to the recipient's account via the interbank payment system. Electronic payments have improved significantly in terms of ease of use, safety and speed, which has led to an increasing number of private money payments. The use of the payment system has been promoted to improve the efficiency of payments. Competition between banks and significant improvements in market infrastructures have also led to increasingly better

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<sup>64</sup> Seigniorage or money creation profit are the proceeds earned by issuing money, i.e. the monetary income of cash. The seigniorage of banknotes is the central bank's return on loans to banks for the purchase of banknotes, minus the cost of the purchase and production of banknotes. The policy objectives of DNB and the Eurosystem are motivated by public objectives such as the smooth operation of the payment system, monetary policy and financial stability.

<sup>65</sup> A small number of counterfeits are an indication of good quality.

opportunities for paying and saving, and a better overview of payment account transactions (apps). Due to the growth in bank lending, the volume of non-cash money has grown considerably and now significantly exceeds the volume of cash money. Cash currently accounts for only 7.4 % of the total money supply in the Dutch economy (Figure 2).<sup>66</sup> Another form of private money is electronic money (e-money) stored on a carrier, such as a chip card, or a local or server-based electronic wallet. This is prepaid money previously debited from a payment account.

**Private money (non-cash) is a claim on a private party. The amount of money in a customer's bank account constitutes a claim on that bank.**

Banks have a statutory privilege to attract and manage money from the public, and to create money. Customers holding private money with a bank are exposed to credit risk, i.e. the chance that the bank will no longer be able to meet its obligations. In order to ensure the quality and availability of money, banks need to handle the funds entrusted to them with due care and comply with all kinds of regulatory requirements. If a bank is unable to meet its obligations towards customers, the deposit guarantee scheme can be activated. This includes an emergency fund from which the claims of these customers can be paid. Banks have been contributing to this fund since 2016. Resolution mechanisms also serve to ensure access to bank accounts and payment transactions in emergency situations.<sup>67</sup>

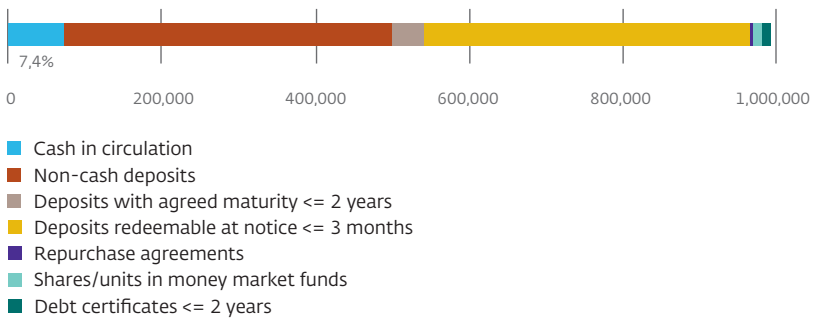
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<sup>66</sup> Share of cash in circulation in M3 as at March 2020, <https://statistiek.dnb.nl/>. The share of cash in M1 is 15%. <https://statistiek.dnb.nl/en/downloads/index.aspx#/?kindofproduct=custom&q=M3&sort=relevance&tags.limited=0>.

<sup>67</sup> As the national resolution authority, DNB can take failing banks into resolution, either as a whole or partially, independently or as part of another bank. See <https://www.dnb.nl/en/resolution/resolutie-van-banken/index.jsp>.

## Figure 2 Share of cash in total money supply M3

EUR million, August 2020



### 3.2 Public money (cash) serves a specific interest

**The exchangeability of private money into public money (cash) remains essential despite the increasing use of private money by citizens and businesses.**

The fact that cash is there and that it can be obtained by exchanging non-cash money, creates confidence in non-cash money. Public money is an anchor, and its exchangeability ensures that the value of euros held with banks is equal to that of euros in cash. Exchangeability is often considered a given, but without a public alternative to the private euro, the value of private money at one bank might not be linked one-to-one to that at another bank. And if a bank would fail without public money as a back-up, this would create uncertainty about the value of money (Wierds and Boven, 2020). So, the exchangeability of non-cash money into public money (and vice versa) is essential. If the use of cash continues to decline, digital central bank money could also help to ensure that this interchangeability between private and public money remains possible.

**The possibility to convert deposits at a bank to risk-free public money would structurally contribute to the stability of the monetary system as a whole.** If citizens feel their bank is taking too much risk, they can withdraw money from their account in cash, or (if they also have accounts with other banks) transfer it to another bank with less risk. If all banks take too much risk, the only way out is to withdraw the money by converting it to risk-free public money. The fact that exchangeability to cash is possible helps to restrain banks and thus provides stability (Keynes, 1930, p. 27, 40, 43). However, if too many people were to withdraw their money at once, this could also cause a bank run and lead to instability in one or more banks. This risk is mitigated by capital and liquidity reserves at banks, by supervision, and by the deposit guarantee scheme. Cash is currently the only way for people to keep money independently of a bank (in their pockets or at home). Keeping non-cash money always involves dependency on a bank (private party).<sup>68</sup> The exchangeability of private and public money is particularly important during periods of uncertainty, such as disruptions in bank payment systems, financial crisis and war. The decreasing use of cash at points of sale leads to increasing dependence on banks, with the risk that the exchange of private to public money will become unavailable or even impossible for citizens. As early as 2003 the BIS stated that central banks will not accept an outcome in which central bank money is phased out by a market mechanism, nor an outcome in which central bank money crowds out private initiative.<sup>69</sup>

**In the event of disruptions in bank payment systems, public money functions as an effective fall-back option.** Disruptions may include a long-term POS terminal failure, a processor disruption, a banking crisis, or a cyberattack that affects one or more banks or other institutions in the

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<sup>68</sup> It is also possible to pay offline with a prepaid credit on a card (such as the former Chipknip and Chipper systems).

<sup>69</sup> Idem (BIS, 2003), The role of central bank money in payment systems (p.6).

payment chain and disrupts electronic payments. Due to its unique characteristics, public money issued by the central bank can function as a back-up means of payment: it is familiar, widely accepted, provides final discharge and allows payments without third party intervention. Purchases can still be paid for and a digital disruption will not lead to social unrest or even disruption. If people need more public money, they need ATMs to convert private money into public money. This means there must be sufficient ATMs and they must continue to function in the event of disruptions in the private money payment system. Public money plays an important role in DNB's commitment to a resilient payment system, and is essential as a means of payment in emergency situations when the private money payment system does not function. As long as there is no crisis, investments in resilience are sometimes seen as non-cost-effective, but once a crisis arises, such previous expenditures always clearly demonstrate their usefulness.

**The combination of public money and private money offers choice and security.** The choice between paying with public money and private money should be for the users, but this requires both types of money are accepted. The choice varies per person and in time, and is influenced by e.g. disruptions in payment systems and by crisis situations. The aspect of privacy also plays a role in the choice for public money, because private parties cannot access someone's payment data when cash is used. The significant increase in the value of banknotes put into circulation annually, despite the fact that the use of banknotes in POS transactions is steadily falling, also demonstrates variation in choice.<sup>70</sup> The growth can be explained by the increasing use of banknotes as a store of value and the increasing use of banknotes outside euro area countries. The financial crisis had an impact on public confidence

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<sup>70</sup> Average annual growth in value: 5.4% over the past 7 years. See [https://www.ecb.europa.eu/stats/policy\\_and\\_exchange\\_rates/banknotes+coins/circulation/html/index.en.html](https://www.ecb.europa.eu/stats/policy_and_exchange_rates/banknotes+coins/circulation/html/index.en.html).



in banks (Van der Crujisen et al., 2019), and in the current low-interest rate environment, the interest advantage of a savings account over banknotes has disappeared. The function of the euro as a reserve currency is similar to its function as a means of savings, i.e. risk mitigation, but in addition to banks it is also aimed at the currencies of the countries where the euro as a reserve currency is popular. For the Eurosystem, the availability of the euro in cash is important for its international function as a reserve currency.

### 3.3 The physical form of cash meets specific needs

**In its physical form of banknotes and coins, cash has specific properties that meet socially important needs.** It concerns the properties of tangibility, recognition of value, non-traceability and independence of electronic systems.

**Cash allows people to make payments independently, including people who have difficulty with digital developments.** People with disabilities should be able to participate as independently as possible in society, including in shopping and leisure activities.<sup>71</sup> The tangible form and clear design of banknotes and coins makes cash easy to use and accessible for all. The tangible aspect of cash also helps people with visual impairments and people in society who have difficulty with abstractions such as non-cash transfers, or who have no or limited access to the non-cash payment system.<sup>72</sup> Nibud estimates the group of low-literate people to be 2.5 million people.<sup>73</sup> According to Nibud, the share of people who prefer to pay in cash is 15% (about 2.5 million people), while an above-average share of people on

<sup>71</sup> See Article 9 of the Convention on the Rights of Persons with Disabilities: <https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities/article-9-accessibility.html>. In Dutch: [mensenrechten.nl/nl/nieuws/hoe-toegankelijk-zijn-goederen-en-diensten-voor-mensen-met-een-beperking-het-college](https://www.mensenrechten.nl/nl/nieuws/hoe-toegankelijk-zijn-goederen-en-diensten-voor-mensen-met-een-beperking-het-college).

<sup>72</sup> This also includes children, and people who do not have a debit card or cannot use it (either temporarily or permanently). <https://www.dnb.nl/en/news/news-and-archive/dnbulletin-2017/dnb352209.jsp>.

<sup>73</sup> Nibud reports (in Dutch) "Geldzaken in de praktijk 2018-2019", [www.nibud.com](https://www.nibud.com).

lower incomes (24%) and of people with lower levels of education (20%) also prefer to pay in cash.<sup>74</sup> Recent research by DNB shows that 23% of consumers prefer to pay in cash for amounts of EUR 5 or more, and it also shows that the use of cash is relatively high among older people and those with lower levels of education.<sup>75</sup> An extensive study of cash use in the UK has found that 17% of the population would run into problems without cash.<sup>76</sup>

**Thanks to the design of cash, people are more aware of the value of money. It helps them to stay within a budget and avoid debt.** People are more aware of the value of cash because a banknote (or coin) is a bearer of value, and its value is prominently shown on its surface. It helps people to learn how to handle their finances.<sup>77</sup> Since they can only spend the cash they carry on them, it helps them to curb their expenditure and prevent debts. Since people experience more “payment pain” when paying in cash, using cash can help to limit total expenditure (Van der Horst et al. 2018) as well as unnecessary and unplanned purchases (Eschelbach, 2017). ). It appears that people on lower incomes and people with limited budgets prefer cash as a monitoring and budgeting tool. Other groups use both cash and cards for this purpose (Hernández et al. 2014). Nibud therefore advises people with (looming) debts to pay in cash to keep an overview of their money and stay in control.<sup>78</sup>

**The untraceability of banknotes and coins contributes to privacy.** Privacy is a constitutional right (Article 10 of the Dutch Constitution). People may prefer anonymity in the case of specific purchases, for example at the

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74 <https://www.nibud.nl/beroepsmatig/help-ik-mis-contant-betalen/>.

75 See <https://www.dnb.nl/en/news/news-and-archive/dnbulletin-2020/dnb388287.jsp>.

76 Access to Cash Review, Final report (March 2019): “Our research found that around 17% of the UK population – over 8 million adults – would struggle to cope in a cashless society.”, “17% not having cash would be a serious problem”.

77 <https://www.dnb.nl/en/news/news-and-archive/dnbulletin-2014/dnb31014.jsp>.

<https://www.dnb.nl/en/news/news-and-archive/DNBulletin2018/dnb373477.jsp>.

78 <https://www.nibud.nl/beroepsmatig/help-ik-mis-contant-betalen/>.

pharmacy or when buying a gift. Cash is untraceable thanks to its physical form, allowing the buyer to remain anonymous and preventing the recipient to use the payment data for commercial purposes. Banks cannot use this payment data commercially either, since they are not involved in cash payments. Last but not least, cash payments are out of sight of the authorities.<sup>79</sup> The government is increasingly imposing restrictions on anonymous use of cash in order to prevent money laundering and crime through cash payments.<sup>80</sup> DNB welcomes additional anti-money laundering measures as long as they do not hamper the smooth functioning of cash payments in legitimate transactions.<sup>81</sup>

**Thanks to its analogous form, cash is an adequate back-up for electronic payments because it allows making payments without having to use a digital system.** This property is independent of the back-up function of cash as public money. Cash payments are not dependent on electronic systems and networks for central authorisation and processing. Cash is a robust means of payment because it always works (“cash does not crash”). The recipient of cash is considered the owner of the banknotes and coins in question. People who carry cash are resilient against disruptions in the electronic payment system and can still make purchases. However, if they need to visit an ATM first, this means there is a link to the banking system and banking networks, due to the ATM’s central authorisation process. Citizens and retailers should therefore ensure they have some cash available at all times.

79 See the ECB speech “The role of euro banknotes as legal tender”, 14 February 2018, <https://www.ecb.europa.eu/press/key/date/2018/html/ecb.sp180214.en.html>.

80 The legislative proposal prohibits cash payments at points of sale for amounts of over EUR 3,000. At present, a notification obligation applies to cash payments of EUR 10,000 under the Anti-Money Laundering and Anti-Terrorist Financing Act (*Wet ter voorkoming van witwassen en financieren van terrorisme – Wwft*).

81 See DNB’s press release <https://www.dnb.nl/en/news/news-and-archive/Persberichten2019/dnb384803.jsp>.

# 4 Keeping cash accessible and available

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**Our analysis shows that there is a social need for cash. The use of cash at points of sale is decreasing, reducing the infrastructure for cash and putting pressure on accessibility and availability.** Without intervention, the steep decline in cash use may erode the cash infrastructure. Promoting the smooth operation of the payment system is one of DNB's statutory tasks. That is why we work to ensure that cash is easily accessible and widely accepted as long as this social need exists. The European Commission and the ECB call on EU Member states to ensure that cash continues to be accessible and widely accepted everywhere. As stated above, the Dutch House of Representatives is aware of this, and in response to parliamentary questions the Minister of Finance has stated the intention to explore the possible measures to safeguard and/or promote a smoothly functioning cash payment infrastructure.<sup>82</sup>

**Easy access means that there must be enough ATMs available to ensure that people can easily and adequately withdraw and deposit cash, even in the event of a breakdown or crisis.** If banks do nothing to maintain the back-up function of cash, the number of ATMs could fall even further. The back-up function should be secured as long as the private sector or central bank does not offer an equivalent alternative. In May 2020, the three largest Dutch banks committed in the NFPS not to reduce the number of ATMs any further after the end of the Geldmaat migration project, (i.e. a total of 5,248 ATMS, 3,850 for the withdrawal of banknotes, see Section 2.2). Similarly, security transport services for retailers and other professional customers should continue to be maintained, including the continuity of clearing services for cash deposits by retailers.

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<sup>82</sup> See (in Dutch) <https://www.rijksoverheid.nl/documenten/kamerstukken/2020/10/01/beantwoording-kamervragen-over-het-met-contant-geld-kunnen-blijven-betalen-in-winkels>.

**Based on the European Commission's Recommendation, broad acceptance means that retailers should continue to accept cash and not switch to card-only payments.** This is the only way to guarantee that citizens retain the choice to pay in cash and that the payment system can continue to function in the case of disruptions in electronic payments. The latter is in the interest of retailers and also serves a broader, social interest in that it prevents unrest if such a disruption is widespread or continues for a long time.

**This leads to the question of whether this need is met by market players to a sufficient extent or whether authorities should take up a greater role.** Cash has a utility function. Strictly speaking it is not a public good, because in its present form (banknotes, coins) it does not meet the public good characteristics of being non-competitive and non-excludable.<sup>83</sup> However, as a system of public money and legal tender, in which use by one party does not obstruct the use by another party, and no parties are excluded on the basis of tariffs or regulation, it may be regarded as such.<sup>84</sup> The European Commission also refers to cash as a public good in its Retail Payments Strategy.<sup>85</sup> Cash, including the availability of ATMs and security transports, can in any case be considered a merit good because its social benefits outweigh the private benefits. There is a shrinking market which depresses the positive external effects of cash, such as the accessibility of the payment system for vulnerable groups and the back-up function. The number of ATMs – and ATM operators – has been falling sharply for years, and only a few security transport companies are left. NFPS agreements have

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83 Notes and coins are both competitive (which allows for an exchange of scarce goods and provokes theft) and excludable (by means of security). A banknote or coin is rather a private asset, although it is issued by the public authorities." (NFPS report, p. 48-49).

84 Virtually Irreplaceable: Cash as Public Infrastructure, p. 14. ([https://www.cashmatters.org/documents/39/IMTFI\\_Whitepaper\\_A4\\_Download.pdf](https://www.cashmatters.org/documents/39/IMTFI_Whitepaper_A4_Download.pdf)).

85 Retail Payments Strategy for the EU (COM/2020) 592 final, p.14 ([https://ec.europa.eu/info/publications/200924-digital-finance-proposals\\_en#retail](https://ec.europa.eu/info/publications/200924-digital-finance-proposals_en#retail)).

so far helped to safeguard the positive external effects of cash. However, the trends of declining cash use, decreasing cash acceptance and a shrinking cash infrastructure are progressing so quickly in the Netherlands that the question arises of what is needed to safeguard a well-functioning cash infrastructure in the medium term. Could this be left to the market, or do we need further agreements? And are voluntary agreements sufficient, or do we need regulation? Is the current distribution of duties between the partners in the cash chain appropriate for the medium term, or do we need to make adjustments? Which parties should bear which costs? DNB will commission a study and an advice on the cash infrastructure for the medium term based on these and similar questions, as recommended in the NFPS report.

# Annex 1 Overview of countries with specific legislation regarding cash<sup>86</sup>

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## Norway

**Accessibility of cash:** Banks are obliged by law to provide cash services to customers. The rationale is that banks are allowed to attract funds from the public but that they must also give them the opportunity to withdraw this money in cash to a sufficient extent. The back-up function of cash is explicitly regulated, and banks need to provide solutions to meet increased demand for cash due to a problem in the electronic payment systems of banks.

**Acceptance of cash:** The 1999 Financial Contracts Act provides that consumers always have the right to pay in cash. Norges Bank has asked the Norwegian Ministry of Finance to specify the right to pay in cash in the Act, to stipulate that this right cannot be overruled by general terms and conditions which exclude cash payments, and to include sanctions to ensure compliance.<sup>87</sup>

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## Sweden

**Accessibility of cash:** Banks are obliged by law to continue to provide cash services to customers.<sup>88</sup> The aim is to facilitate the continued use of cash in Swedish society by ensuring an adequate level of access to cash services throughout Sweden. The Swedish regulations target banks holding deposits over SEK 70 billion. In its opinion, the ECB states:<sup>89</sup>

*2.2 Notwithstanding that the ECB holds a positive view of further innovation and development in the field of electronic payment instruments, the ECB also welcomes the core objectives of the draft law, namely to facilitate the continued use of cash in Swedish society by ensuring an adequate level of access to cash services throughout Sweden.*

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<sup>86</sup> As far as we know. We do not know any other countries where agreements are made regarding the accessibility of cash by consensus.

<sup>87</sup> The Financial Contracts Act gives consumers the right to always settle up with a payee in cash. <https://www.regjeringen.no/en/dokumenter/meld.-st.-24-20182019/id2642702/>.

<sup>88</sup> [https://www.riksdagen.se/sv/dokument-lagar/arende/betankande/skyldighet-for-kreditinstitut-att-tillhandahalla\\_H701FIU29](https://www.riksdagen.se/sv/dokument-lagar/arende/betankande/skyldighet-for-kreditinstitut-att-tillhandahalla_H701FIU29).

<sup>89</sup> Opinion of the ECB of 26 November 2019 on the requirement for certain credit institutions and branches to provide cash services (CON/2019/41) [https://www.ecb.europa.eu/ecb/legal/pdf/en\\_con\\_2019\\_41\\_f\\_sign.pdf](https://www.ecb.europa.eu/ecb/legal/pdf/en_con_2019_41_f_sign.pdf).

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2.3 *The ECB considers it important that all Member States, including non-euro area Member States, take appropriate measures to ensure that credit institutions and branches operating within their territories provide adequate access to cash services, in order to facilitate the continued use of cash.*

**Acceptance of cash:** The Swedish regulations on banking obligations also state that the ability to pay in cash is still crucial for certain groups in society who are unable to pay in other ways (e.g. elderly people, immigrants, socially vulnerable citizens). The Riksbank has asked the government to review the definition of legal tender.

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#### Denmark

**Acceptance of cash:** The law provides that consumers should have the choice to pay in cash. The aim is to protect consumers' freedom of choice (political interest), and in this case accepting card payments should not lead to a refusal to accept cash. In connection with increased risk of robberies, retailers can apply for an exemption from the obligation to accept cash after 8 p.m. There are relatively few applications. Pharmacies must always accept cash, also in the evening.

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#### United States

**Acceptance of cash:** In May 2019, a legislative proposal (Payment Choice Act of 2019)<sup>90</sup> was introduced in the US Parliament prohibiting retail businesses from refusing cash payments. In Massachusetts, such an obligation has been around for some time, while New Jersey has recently passed a law requiring retailers to accept cash. New York City, San Francisco and Philadelphia have prohibited retailers from going cashless, and Washington DC and Chicago are also considering such a prohibition.

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<sup>90</sup><https://www.congress.gov/bill/116th-congress/house-bill/2650/cosponsors>.



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