

## Country report

# The payments industry in the Netherlands: Status and future developments

Received (in revised form): 2nd July, 2021

**Piet M. Mallekoote\***

Independent Adviser and Supervisor, Netherlands

**Gerard Hartsink\*\***

Independent Adviser, Netherlands



Piet M. Mallekoote



Gerard Hartsink

**Piet M. Mallekoote** is an independent adviser and supervisor in the field of payments. His previous experience includes such roles as Chief Executive Officer of the Dutch Payments Association, and Chief Executive Officer of Currence (the owner of the iDEAL and iDIN schemes). He has also chaired various steering and stakeholder groups on innovative payments at both national and international level. Piet has a degree in economics from the University of Amsterdam.

**Gerard Hartsink** an independent adviser with broad experience in the fields of payments, cards, securities and identity management. He has previously chaired such organisations as the Global Legal Entity Identifier Foundation, the European Payments Council and CLS Bank International, and served on the boards of such organisations as Maestro, SWIFT, LCH.Clearnet Group, Euroclear Netherlands and the Euro Banking Association.

### ABSTRACT

*Transaction fees are not simply a core source of revenue for payment service providers, but also impact significantly on the economy more broadly. This paper examines the situation in the Netherlands, where the banks in this relatively small country have historically cooperated to keep transaction costs low. With a focus on retail payments rather than the settlement of payment transactions or the payments leg of securities transactions, this paper explains the princi-*

*ples underlying this model of cooperation, and explores how cooperation within the payments industry has impacted the sector and country.*

**Keywords:** cooperation model, SEPA schemes, card schemes, e-payments, iDEAL, cash services, digital identity, iDIN, AML, transaction monitoring

### INTRODUCTION

Transactions are not free. The costs associated with transactions are not simply a core source of revenue for payment service providers, but also impact significantly on the economy more broadly. In 2012, the European Central Bank (ECB) estimated that within the Eurozone, the social costs associated with euro retail payment transactions amounted to approximately 1 per cent of the gross domestic product (GDP), with point-of-sale (POS) payment transactions amounting to around 0.6 per cent of GDP.<sup>1</sup> In the Netherlands, in 2013, these costs were one-third lower, at 0.4 per cent of GDP (€3bn).<sup>2</sup>

Keeping transaction costs low is therefore an important objective for the payments industry — along with the provision of user-friendly and safe payment services (which also generate costs).

The principle of transaction costs was first introduced by Coase, to explain how a company decides whether to produce something

\*E-mail: p.m.mallekoote@kpnmail.nl

\*\*E-mail: gerard.hartsink@planet.nl

itself or to outsource via market purchases.<sup>3</sup> Transaction costs are the determining factor here. They include both measurable and observable (hard) costs, such as the costs of transport and legal services, and more hidden costs resulting from, for example, the collection of information. Williamson developed this theory further.<sup>4</sup>

In a payment system, there are two forms of transaction cost:

- transaction-specific costs, such as the time spent executing and recording a transaction, the cost of resolving an error in payment, the cost of fraud, and — for the consumer — the friction in the customer journey associated with current online payment methods;<sup>5</sup> and
- the transaction costs of building up and maintaining the fiduciary character of the money (ie the trust that goods and services can be bought with it).

These two types of transaction costs are not independent of each other. When the fiduciary nature of money is undermined, for example by a decrease in trust in the payment system, transaction costs will increase. This could be the case in times of crisis, where countries may experience large cash withdrawals sparked by loss of confidence in the banking or payment system. In such instances, consumers are more likely to resort to less efficient payment products (eg cash).

Keeping the transaction costs of a payment system low is therefore an important objective. Cooperation between the various parties involved in an organised form of decision-making (a ‘matching zone’ — as discussed by Butter, den and Wolde<sup>6</sup>) is key to this objective.

## A COMPLEX MARKET WITH NETWORK EFFECTS

Payment transactions are characterised as a two-sided market and therefore differ from

other markets for financial services, such as the market for mortgages or savings products. In a two-sided market, two parties — payer and payee — are needed to carry out a transaction.

Baxter first presented an analysis of a two-sided market for payment card use in 1983.<sup>7</sup> In this model, both sides of the market are connected through an intermediary, so that consumers and retailers, through their providers (issuers and acquirers) can do business with each other. This is also known as the four-party model. In practice, however, there are five parties, because the intermediary (the matching zone — in payment transactions also often referred to as a master agreement or rulebook with rules and standards) plays a connecting role in the transaction.

Rochet and Tirole elaborated on the concept of two-sided markets.<sup>8</sup> According to the authors, the number of transactions in a two-sided market is also determined by the price structure between both sides of the market rather than the price of the transaction alone. A reallocation of the (total) price from one side of the market to the other influences the use of the network. In payment practice, the number of transactions increases as the most price-inelastic party (the merchant) absorbs a larger share of the total cost of a transaction. This notion is important in steering consumers towards more efficient payment transactions.

When the number of users in a two-sided market grows, externalities arise. These describe a situation in which the value for a user increases as more users join the network. Metcalfe’s law is relevant in this context. Metcalfe established in 1980 that the value of a network increases with the value  $n(n-1)/2$ , where  $n$  is the number of users. Empirical tests of Metcalfe’s law have been performed by Madureira *et al.*<sup>9</sup> and Zhang *et al.*<sup>10</sup> In payment transactions, network effects (ie indirect or cross-side network effects) on *both* sides of the market are important.

As more consumers use a payment card, the value for merchants increases (and vice versa) and adoption of this payment product will increase among other merchants. In addition, this creates economies of scale on the supply side, which in turn reduces costs. In this chicken-and-egg scenario, a matching zone that brings both parties together is necessary and of great value, both for end users and for payment providers. In addition to the cross-side network effects, (direct) network effects arise on each side of the market.<sup>11</sup> Hereby, for instance, consumers and retailers can better represent their common interests or make cheaper purchases together. Stakeholder management (supply side and demand side) is therefore important for social efficiency (ie for reducing the costs of producing payment instruments, borne by the various stakeholders in the payments market). The larger the network, the lower the costs. This requires cooperation.

### Cooperation creates trust

Cooperation has a welfare-enhancing effect and is essential to save costs and increase social efficiency. In this context, standardisation is traditionally cited as fundamental to reducing costs. However, standardisation is unlikely to succeed without a matching zone to facilitate and coordinate consultations between the various parties involved, and thereby create the trust necessary for adoption.

Reaching agreements regarding infrastructure, business rules and product characteristics (in a formal set of agreements) is a further step in the process of cooperation. The Dutch payment method iDEAL (managed by Currence) is an example of this, as are the four Single Euro Payments Area (SEPA) payment schemes, of which the Rulebooks containing the business rules and standards are managed by the European Payments Council (EPC). Cooperation and mutual trust promote intrinsic motivation in

the implementation of decisions taken. In a situation of intrinsic motivation, transaction costs are usually considerably lower than in a situation of extrinsic motivation, where legislation and regulation are decisive.<sup>12,13</sup> This was the case, for example, when the European banks could not agree on a SEPA scheme for cards and a framework for e-payments. The result was the revised EU Payment Services Directive (PSD2), of which banks were on balance the losers (and new entrants also did not achieve their goals).

### INSTITUTIONAL SETTING

Since the second half of the 1980s, banks in the Netherlands have focused on jointly realising more efficient payment services. This was prompted by studies into the costs of payment transactions. These studies found that such costs had risen sharply, which would lead to considerable cost increases for consumers and businesses. The Dutch Central Bank (DNB) and the Ministry of Finance therefore advised the banks to cooperate more in order to realise a more efficient payment system. At the start of debit card ('PIN') payments in the second half of the 1980s, DNB recommended setting up a common infrastructure for this purpose. The cooperation and network effects led to PIN payments becoming a great success in terms of efficiency as well as the number of users. As a result, the digitisation of payments took off, leading to a decline in the use of cash.

Figure 1 provides an overview of the most important milestones in the road to digitised payments in the Netherlands. After the introduction of debit cards for automated teller machine (ATM) withdrawals in the second half of the 1980s, debit cards started being accepted at the POS in 1990. Debit card payments then developed rapidly across a large number of use cases (including in unattended environments). The later introduction of contactless payments (with a card

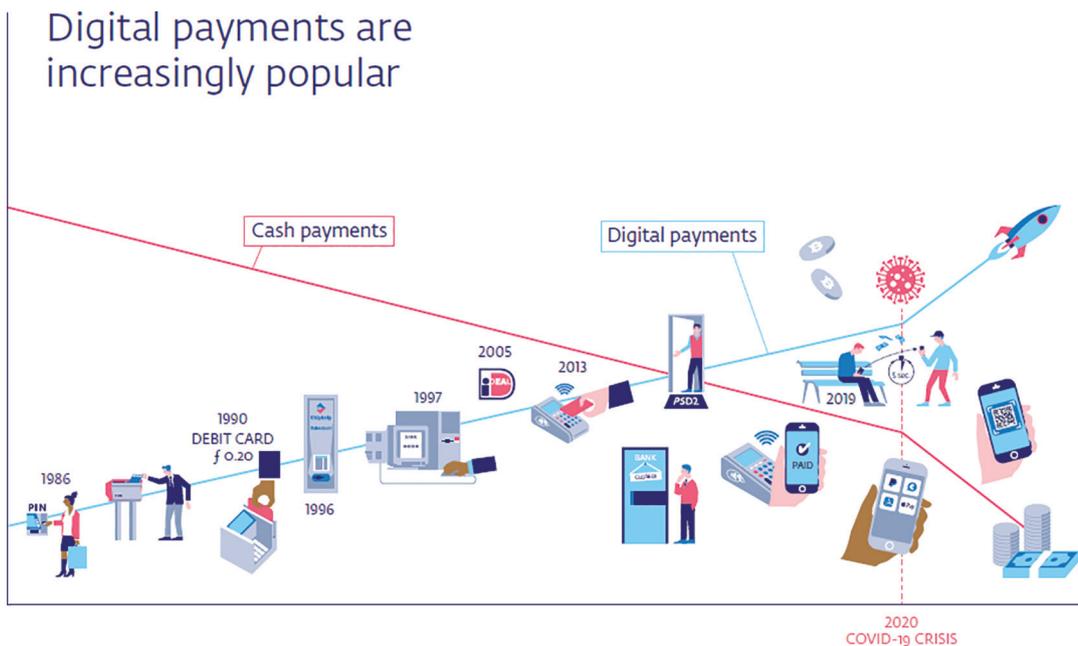


Figure 1: Milestones in the evolution of the Dutch payment system

Source: De Nederlandsche Bank (2020) Annual Report 2020, available at: [https://www.dnb.nl/media/djspazix/jaarverslag\\_2020\\_dnb\\_eng.pdf](https://www.dnb.nl/media/djspazix/jaarverslag_2020_dnb_eng.pdf)

or mobile device) provided further impetus to this trend, with the COVID-19 pandemic compounding things further. In the online environment, meanwhile, the introduction of iDEAL ([www.ideal.nl](http://www.ideal.nl)) in 2005 gave consumers greater confidence to buy and pay on the internet.

In the remainder of this paper, these developments are explored further.

### Currence

At the turn of the century, a dispute arose about transactions fees between retailers and banks. However, an investigation by DNB found debit card transaction fees in other countries to be higher than Dutch retailers had previously thought. This findings were accompanied by a number of recommendations.

To create more competition in the market, and thus reduce costs for all participants, DNB advised banks to open up the market

for processing POS transactions from the single legacy processor to other processors. In addition DNB advised to migrate the existing contracts from the single processor to the various acquiring banks.

Rather than submit to formal regulatory measures, the banks moved to separate the rules and regulations of payment products (ie the schemes) from the processing, and created an independent entity to regulate the market. In 2005, this led to the establishment of Currence ([www.currence.nl](http://www.currence.nl)) as the owner of the national payment schemes.

Currence's task is to facilitate competition in the field of collective payment products (including *inter alia* debit cards, up to 2010) through open access to such schemes, thereby contributing to greater social efficiency. Currence's independent position is safeguarded by a supervisory board that is independent of the banks. DNB exercises oversight over Currence.

To promote PIN payments, a separate organisation with retailers and banks was set up with the joint aim of reducing cash payments at the point of sale.

### **Dutch Payments Association**

In advance of the launch of the euro payment market and the replacement of the country's national PIN product by international card brands, the banks decided to establish the Dutch Payments Association ([www.beta-alvereniging.nl](http://www.beta-alvereniging.nl)) alongside Currence at the end of 2011, with the aim of concentrating and coordinating all collective tasks aimed at improving the (social) efficiency, safety, reliability and accessibility of payment services in the Netherlands.

The 57 members of the Dutch Payments Association comprise both banks and payment institutions (including FinTechs). Alongside these payment service providers, an advisory body comprised of representatives of retailers and consumers is tasked with governance duties vis-à-vis policy decisions concerning innovations and important changes.

The supervisory board consists of nine members, three of which are independent, including the chairman. DNB is an observer at the board meetings. This helps ensure that all decisions represent the interests of the various stakeholders.

The association maintains close relationships with European bodies and (global) standardisation organisations (such as ISO), with the larger member banks active in some of these bodies — for example, the EPC is responsible for the SEPA (euro) payment schemes. Together with its members, the Dutch Payments Association prepares positions for discussion in European and (inter)national bodies (and in many cases represents its members in these bodies). On behalf of its members, the association keeps an eye on all national and international developments and provides solicited and unsolicited advice regarding operational efficiency and security.

### **National Forum on the Payment System**

Under the chairmanship of DNB, the National Forum on the Payment System was established in 2002. This is the national equivalent of the Euro Retail Payments Board — the high-level strategic body tasked with fostering the integration, innovation and competitiveness of euro retail payments within the EU. The forum facilitates discussions between providers and customers of payment services with respect to social and economic bottlenecks in payment services at the national level, and helps them reach agreements relating to the efficiency, security, reliability and accessibility of the payment system. Sixteen organisations take part in this forum, including business associations, consumer associations, organisations representing senior citizens and organisations for people with functional impairments.

### **FATF recommendations**

The Financial Action Task Force (FATF) recommendations for combating money laundering and terrorist financing are incorporated in Dutch law under the Prevention of Money Laundering and Terrorist Financing Act 2008. The supervisors and public prosecutors play an active role in ensuring that all payment service providers comply with the legislation.

The Financial Intelligence Unit Netherlands is an active member of the Egmont Group ([www.egmondgroup.nl](http://www.egmondgroup.nl)) — an alliance of 166 financial intelligence units, and plays a crucial role in the reporting of suspicious transactions. In 2019, it received 2.4 million reports on unusual transactions, of which 2.1 million came from payments service providers.<sup>14</sup>

In 2020, five Dutch banks moved to establish Transactie Monitoring Nederland (<https://tmnl.nl>) — an organisation to monitor payment transactions for signals that could indicate when a payment is being used

for money laundering or financing terrorism. This company will support the banks in their gatekeeper duty to protect the integrity of the financial system.

To conclude, the Dutch payments system has for many years relied on cooperation between all stakeholders in the payment chain, combined with governance where appropriate. This has reduced costs and strengthened network effects.

## STANDARDS

Standards are critical for efficient and secure payment systems.<sup>15</sup> The word ‘standard’, however, has multiple connotations. For example, the 2012 CPMI-IOSCO Principles for Financial Market Infrastructures<sup>16</sup> provide an example of *policy standards* relevant for the oversight of payment systems. Meanwhile, legislators create *public legislative standards* for payment services in order to, among other things, protect consumers, cap interchange fees and reinforce the gatekeeper duty of banks with respect to combating money laundering and terrorist financing; payment schemes use *private legal standards* based on specific legislation for the rulebooks used by their scheme participants; and *technical standards* include standards for the identification of participants in the payment ecosystem, messaging standards, data standards and security standards.

The Netherlands is member of the European Union and, as such, the PSD2 (EU Directive 2015/2366 on Payment Services in the internal market) has been transposed in Dutch law, including the delegated regulations supplementing this Directive, such as with regard to regulatory technical standards for strong customer authentication and common and secure communication

Dutch payment services providers use *private legal standards* such as the Rulebooks of the EPC for the four SEPA payment schemes

for euro payments within the EU (ie SEPA Credit Transfer, SEPA Instant Credit Transfer, SEPA Direct Debit and SEPA B2B Direct Debit); the Maestro scheme and/or the V Pay scheme for card payments and cash withdrawals; and, for many currencies, the SWIFT Credit Transfer and Global Payments Innovation rules for cross-border instant payments.

In response to the rapid development of e-commerce — and the lack of a European scheme — payments service providers in the Netherlands have developed two schemes: iDEAL ([www.ideal.nl](http://www.ideal.nl)) for online payments and requests to pay via SEPA Credit Transfer, and iDIN ([www.idin.nl](http://www.idin.nl)) for the online identification and authentication of consumers for banks, merchants and government agencies. These two schemes are based on Dutch law and reuse the authentication tool issued by the bank of the consumer.

With respect to *technical standards*, payment service providers in the Netherlands have shown a preference for the standards of global standardisation organisations, such as ISO TC 68 Financial Industry (identifier standards, message standards such as ISO 20022), SWIFT (message standards), PCI (card security standards) and EMV (secure payment transactions). Dutch experts participate actively in these standardisation organisations.

## POINT-OF-SALE PAYMENTS

Knowing that any attempt to reduce the costs associated with the payment system would succeed only through cooperation, the banks set up a common infrastructure for PIN payments in the 1990s, when PIN payments first started. The aim of the debit card system was to make payment transactions more efficient (and user-friendly) by reducing the use of cheques and cash for in-store payments. While cheques were phased out with the introduction of the euro in early 2002, it was not until 2005

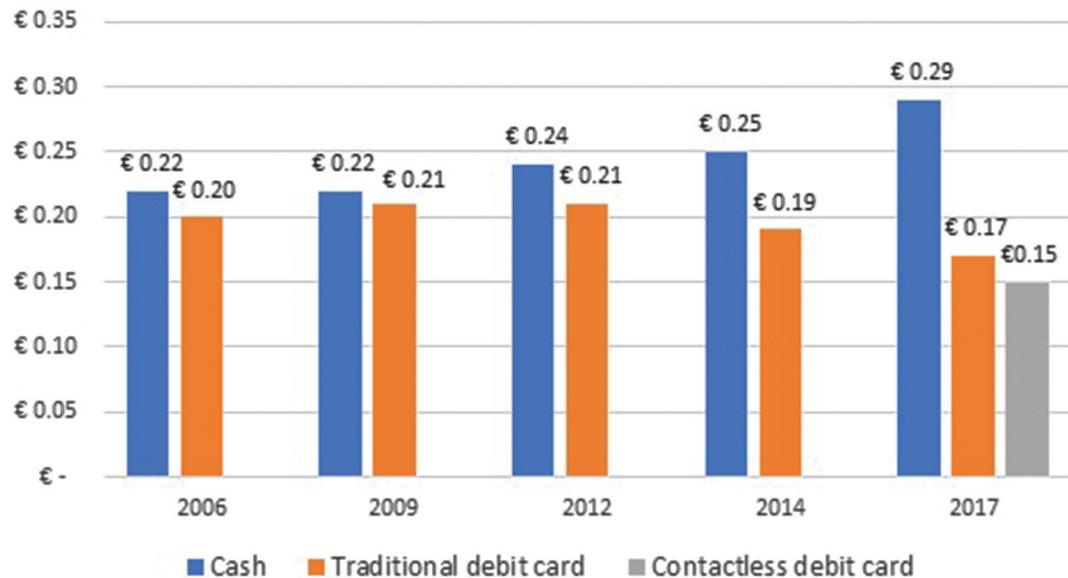


Figure 2: Costs per transaction, by payment method

Source: van Marwijk, M., de Ruiter M. and van der Zeijden, P. (2018) 'Kosten van het toonbankbetalingsverkeer in 2017', available at: [https://www.pin.nl/wp-uploads/2018/12/Kosten\\_van\\_het\\_toonbankbetalingsverkeer\\_2017.pdf](https://www.pin.nl/wp-uploads/2018/12/Kosten_van_het_toonbankbetalingsverkeer_2017.pdf) (accessed 26th July, 2021)

that debit cards accounted for 20 per cent of the total number of POS transactions. After this, however, things moved quickly: the establishment of Currence and of a separate organisation between umbrella retail-organisations and the banks to stimulate debit card transactions brought about a sharp acceleration in the growth of debit card use.

Following studies conducted by DNB and the retail sector showing that debit card payments were cheaper than cash payments,<sup>17</sup> retail sector associations called on their members to encourage customers to pay by debit card rather than cash. Banks also marketed the advantages of debit cards to their customers via their websites, public campaigns (eg 'Debit card — yes please!'), and making information available at the POS.

Obstacles to the uptake of debit card payments were also resolved jointly (eg investment in the necessary telecoms

infrastructure at the merchant's POS to provide debit card holders with real-time balance updates), and new services such as 'return debit payments' (ie a refund from the merchant to the customer) were introduced.

With adoption growing, the costs of transacting with debit cards could be reduced further (Figure 2). This decrease continued even when the issuing banks replaced the national PIN product with the Maestro and V Pay payment brands at the end of 2011.

By the end of 2020, the volume of debit card payments as a proportion of POS payments had risen to 80 per cent, with cash payments falling to 20 per cent (Figure 3).

By the end of 2020, the share of contactless payments made using a payment card or smartphone amounted to 85 per cent of all card payments. Most large shops have introduced card-only points in their stores, with some keeping only a single check-out for cash payments. During the period 2005–2020, the cost savings resulting from the

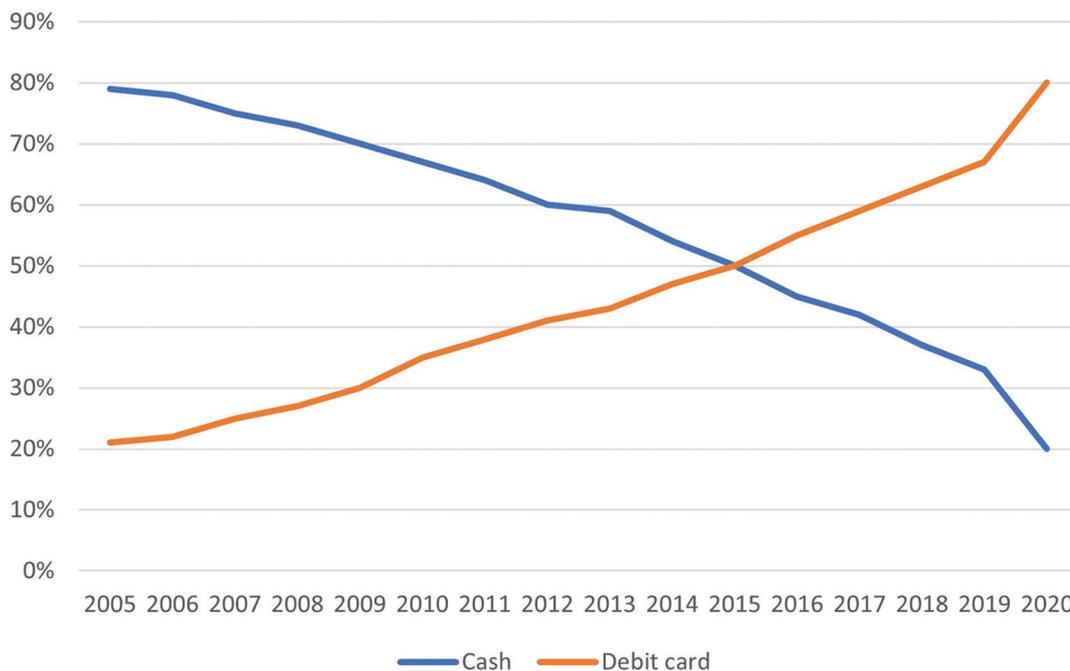


Figure 3: Breakdown of point-of-sale payments by payment method, 2005–2020

Source: DNB (2021) 'FS Betalen aan de kassa 2021', available at: [https://www.dnb.nl/media/e34bo5zu/betalen\\_kassa\\_2020.pdf](https://www.dnb.nl/media/e34bo5zu/betalen_kassa_2020.pdf) (accessed 26th July, 2021); Dutch Payments Association (2021) 'Feiten over betalen aan de kassa', available at: <https://www.betalvereniging.nl/actueel/feiten-cijfers/feiten-toonbank/> (accessed 26th July, 2021)

change in payment behaviour amounted to €2bn. (Here, it should be noted that credit card transactions at the POS are constrained by the relatively high fees retailers experience compared with debit card transactions.)

From an international perspective, the figures compare favourably, with per capita cash withdrawals in the Netherlands the lowest of the euro countries. The number of debit card transactions per capita increased by 250 per cent between 2005 and 2019, and now rank among the highest in Europe (Figure 4). While the Nordics and the UK rank ahead of the Netherlands in this regard, it is worth noting that most online purchases in the Netherlands are paid via iDEAL rather than debit or credit card.

To reduce the cost of handling cash, including the associated logistics, the

three major banks (ABN AMRO, ING and RABO) agreed to work together to standardise processes relating to the handling of retailers' cash deposits. Significant progress in this regard was made in 2011 with greater standardisation of the cash handling process and the concentration of cash handling functions in a new company, Geldmaat.

In 2019, the three banks agreed to cooperate once more, this time in the area of ATM services for cash withdrawals and cash deposits, and replaced their proprietary ATMs with a common Geldmaat branded ATM at places with sufficient customer demand, to ensure that all consumers continue to have easy access to cash.

By March 2021, cash payments in the country had fallen by 10 percentage points, in no small part thanks to the Dutch Payments

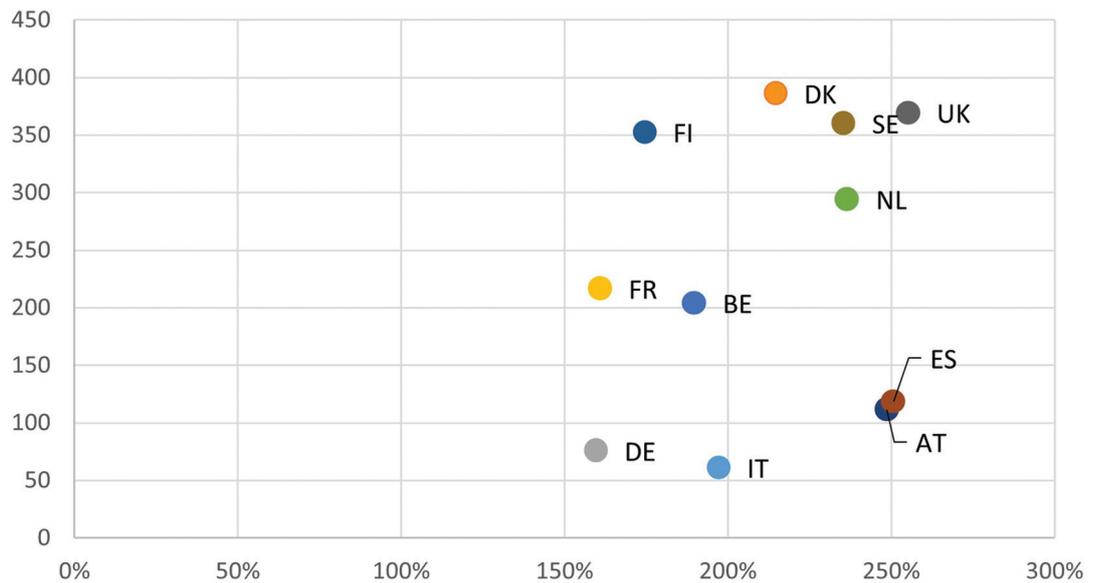


Figure 4: Number of card payments per capita (number and growth 2019 vs 2005)

Source: ECB Statistical Data warehouse

Association coordinating an increase in the limits for contactless POS payments in response to the onset of COVID-19.

Because cash is being used less and less (meaning fewer ATMs are needed), but must remain readily accessible to the public, DNB commissioned an independent agency in 2020 to advise on the infrastructure for cash payments in the medium term. This study looks at the entire chain for banknotes and coins and explores ways to ensure the cost of using cash remains viable. The results of this study will be known in the course of 2021.

## ONLINE PAYMENTS

### Shift from in-store to online payments

Online purchases in the Netherlands have been increasing significantly for a number of years. In 2020, 28 per cent of all consumer spending was conducted online — an increase of 7 per cent compared with 2019. In addition, the number of transactions for products increased by 41 per cent, while

transactions for services decreased by 37 per cent, partly due to the COVID-19 induced slump in sales of holiday-related travel and accommodation. On balance, the number of e-commerce transactions increased by 27 per cent. This marks a major shift from physical to online sales. The number of debit card transactions increased by only 3.4 per cent in 2020, while in the previous five years the yearly growth rate was around 10 per cent on average. According to the Dutch Payments Association, 88 per cent of the Dutch population (older than 12 years) had made at least one purchase online by 2020. Thuiswinkelmonitor<sup>18</sup>: 13.1 million shoppers, population older than 12 years is 14.8 million.

Most online purchases in the Netherlands are paid via iDEAL. In other countries, Mastercard, Visa and PayPal are the most commonly used payment methods. The market share of iDEAL increased from 60 per cent in 2019 to 69 per cent in 2020. The share of Mastercard and Visa payment cards remained at 9 per cent overall, while the share of

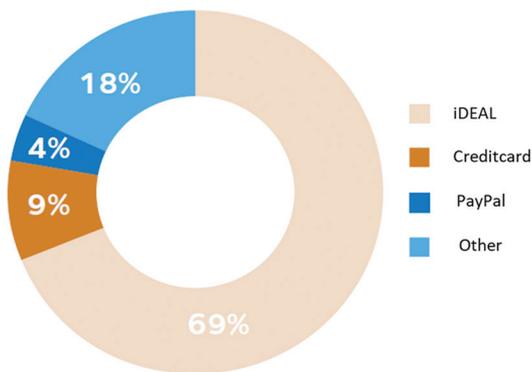


Figure 5: Payment methods used for e-commerce in the Netherlands

Source: Currence (2021) 'Annual Report 2020', available at: <https://www.currence.nl/wp-uploads/2021/05/Currence-Annual-Report-2020.pdf> (accessed 26th July, 2021)

PayPal decreased by one percentage point to 4 per cent of all web purchases (Figure 5).

### Strong position of iDEAL

With iDEAL, the Netherlands is in a unique situation with regard to payments for e-commerce. iDEAL was launched in 2005 to provide account-to-account payment via SEPA credit transfer, with a real-time guarantee for the recipient (payee). Payments are initiated by the consumer directly from their own bank account. iDEAL is a payment scheme with business rules and standards in a four-corner model with open access and competition between the scheme participants. The popularity of iDEAL stems from its intuitive interface, user-friendliness and reliability. All citizens with a Dutch bank account can use iDEAL without signing up. iDEAL is offered by 13 issuing banks and 50 acquiring parties (banks and payment institutions). Of these, 20 are not based in the Netherlands. iDEAL is also popular among Dutch citizens making purchases from online vendors from more than 50 other countries. About 15 per cent of iDEAL payments can be attributed to such international e-commerce.<sup>19</sup>

Besides paying for e-commerce, iDEAL is used as a request-to-pay service to pay bills and tax demands, as well as person-to-person (P2P) payments. Of all P2P-payments conducted in the Netherlands, 55 per cent are conducted via iDEAL (the remaining 45 per cent in cash). iDEAL is also increasingly used for business-to-business (B2B) payments.

In 2020, iDEAL again showed strong year-on-year growth (34 per cent), with mean annual growth of 30 per cent over the preceding five years. iDEAL was used to make approximately 890 million euro payments in 2020, making it the largest online e-banking payment scheme in Europe. Around 85 per cent of all iDEAL payments are authorised via smartphone.

Such is the popularity of iDEAL that Dutch consumers have shown little interest in PSD2 payment initiation services. With respect to account information services, Dutch consumers prefer services delivered by their own bank as they have more faith in their own bank, as 'custodian of their payment data', than in big techs.<sup>20</sup>

### Online debit card payments are coming

As a means to combat online fraud, Dutch consumers have historically been unable to use debit cards to make online payments. Recently, however, a few banks have started pilots with tokenised virtual debit cards. Consultation with market participants on this subject is currently facilitated by the Dutch Payments Association.

### Strong customer authentication

In accordance with the relevant Regulatory Technical Standards (RTS) of the European Banking Authority (EBA), strong customer authentication (SCA — ie two-step authentication) for online card transactions has been mandatory since 1st January, 2021. The Dutch Payments Association coordinated

the various parties involved in the project, thus helping the project to progress more efficiently.

## DIGITAL IDENTITY

Due to increasing digitisation, companies and institutions have a growing need for certainty regarding the identity of online customers and other users. In 2016, in cooperation with the banks, Currence developed iDIN as a digital identity scheme to meet this need in the consumer-to-business (C2B) and consumer-to-government (C2G) contexts.

iDIN follows a similar customer journey as iDEAL, inasmuch as it is simple to use, user-friendly and trusted. The scheme is based on business rules and standards that align with the requirements of the European e-IDAS and the EU General Data Protection Regulation. Using iDIN, consumers can use their own bank's secure login tools to credential themselves safely at other organisations and sign digital contracts. This process of data minimisation reduces the amount of data exchanged, thereby limiting the potential for fraud.

Although usage has increased significantly in recent years, iDIN is yet to enjoy mainstream adoption. In 2020, for example, the number of transactions was still below 10 million. At present, iDIN is most commonly used within the financial services sector to handle privacy-sensitive data (eg for mortgages, insurance etc), and as a tool to enable age-restricted purchases, such as alcohol and gambling.

Such limited adoption is in part the result of the government regarding iDIN as a competitor of the government's DigiD scheme and not supporting its use in the context of public services. Going forward, however, legislation is being prepared to address this.

Experience shows that the existence of multiple, non-interoperable standards hampers consumer adoption. In the Nordics, by

contrast, the single standard for digital identity has firmly taken off for C2B and C2G payments.

The potential of digital identity is enormous, not only in the Netherlands but also in other EU countries. Most obviously, digital identity is a precondition for access to open banking and open data. The European Commission has recently launched a framework for a European Digital Identity.<sup>21</sup> Banks are strongly positioned for this because they are generally considered to be trustworthy institutions with the requisite knowledge and experience in know-your-customer processes. For the European Digital Identity to succeed, quality customer data will be essential. With banks verifying customer data on a regular basis, they will become expert data custodians, and will find themselves well positioned to broaden their portfolio of services by offering authentication services.

In 2014, the G20 and Financial Stability Board (FSB) initiated the global Legal Entity Identifier (LEI) programme. Use of the LEI is now mandatory for business-to-government (B2G) reporting on various kinds of financial transactions, and the FSB has published a roadmap for using the LEI to enhance B2B cross-border payments.<sup>22</sup>

## GIRO-BASED PAYMENTS

Within the EU, B2C, B2B and B2G giro euro payments — both domestic and cross-border — are based on the appropriate SEPA schemes. In total, 3.5 billion giro-based euro payments were made in the Netherlands in 2020 (225 per capita; including B2B and B2G payments). This does not include the 0.9 billion iDEAL payments settled via SEPA credit transfer. With virtually all euro payments now presented and processed electronically, paper-based payment orders are almost obsolete.<sup>23</sup>

Direct debit, based on the SEPA direct debit schemes, is a popular method for

making payments to businesses and government agencies (such as tax). It is easy to use and banks have implemented many protective measures to prevent abuse. On average, in the Netherlands there were 94 direct debit transactions per capita in 2020, totalling 1.5 billion.

Payments may also be made as batch payments or single transfers. Batch payments are large bundles of SCT payments initiated by businesses, such as salary payments (B2C) and supplements and benefits (G2C). Single transfers are mostly initiated by consumers, with half being initiated via the mobile channel, and the other half via internet banking. Over the past four years, the share of mobile banking in the Netherlands has increased by 16 per cent.

The Netherlands has an open economy with high level of both imports and exports. According to the *Economist*, in 2020 the country had a GDP of €737bn, with €528bn exports and €462bn imports. About 75 per cent of the country's exports go to other EU countries, while about 46 per cent of its imports come from elsewhere in the EU. Not all payments with the EU are conducted in euros. The majority of Dutch banks use correspondent banking services (supported by the SWIFT network) for payments services in other currencies than the euro and/or with the business partners of their customers outside the EU.<sup>24</sup>

A few years ago, Dutch banks introduced an IBAN name check service to prevent transfers with incorrect or fraudulent IBANs. According to Surepay (<https://www.surepay.nl/>), this has reduced the number of incorrect or fraudulent transfers by 80 per cent.

### Instant payments: The new normal

In 2019, the Instant Payments project, in which the banks jointly introduced instant payments, was concluded under the management of the Dutch Payments Association.

Since then, instant payments have become the new normal and all simple euro credit transfers take place 24/7/365. Within Europe, the Netherlands is a front-runner in the use of instant payments, and more and more batch payments are gradually being processed instantaneously.

In the Netherlands, instant payments are processed within a maximum of five seconds. This is shorter than the EPC standard, which allows for a processing time of ten seconds. No maximum limit per payment has been agreed. The use of instant payments in the Netherlands is therefore broader than the EPC standard, which allows a maximum of €100,000.

For Dutch consumers, instant payments are widely available for general use, without additional fees. This is not yet the case in a number of other European countries, where accessibility is determined on a bank-by-bank rather than collective basis. In such countries, access to instant payments is often considered a premium product with higher pricing. The ECB has called on market participants to speed up the introduction of instant payments and to make the service available to customers in a cheap in easy to use.<sup>25</sup> In this context, the ECB has taken steps to further promote access to instant payments in Europe by extending access to its Target Instant Payments Settlement System (TIPS). TIPS stands alongside existing infrastructures for instant payments (such as equensWordline and EBA Clearing in the Netherlands).

### Switching service

Since 2004, the process for switching one's account from one bank to another (albeit without number portability) has been made much easier for consumers in the Netherlands. For a period of 13 months, the switching service transfers credits and debits from the old current account to the current account at the new bank. As part of

the switching process, companies that use direct debit as a means of payment are automatically informed when their customers change accounts, to ensure that payments are taken from the right (ie new) payment account.

Since 2020, the provision of information about new account details has been extended. If a payer uses the old account number of a payee in an online banking context, the payer will immediately be informed of the new account number so they can use this instead. This increases use and convenience for the customer.

The number of people switching accounts, however, is not high: out of 24 million current accounts, only 51,000 transfers were conducted in 2020. This implies a generally high level of customer satisfaction.

## **SAFE PAYMENTS AND CYBER SECURITY**

### **Collaboration on fraud and cyber security helps**

For any electronic payment system to function properly, security is essential. To ensure this, banks and payment institutions in the Netherlands work together under the direction of the Dutch Payments Association.<sup>26</sup> The aim is to minimise fraud by exchanging knowledge and experience. Cyber security incidents are also shared quickly in order to prevent further damage. In this way, the sector is well positioned to prevent and combat fraud. This cooperation results in lower costs for all market participants.

Fraud is not only a problem for banks, but for society as a whole. For this reason, Dutch banks collaborate with all parties active in the payment chain, as well as with the National Cyber Security Centre (<https://www.ncsc.nl>) — the operational arm of the Ministry of Justice and Security responsible for advising and informing government IT and critical national infrastructure providers of current threats and

vulnerabilities associated with network information security — to combat and prevent fraud. This level of cooperation is unique in Europe, and has been proven to reduce the amount of fraud committed in the country.

To raise consumers' awareness regarding criminal practices (and their use cases), the Dutch Payments Association manages regularly updated publicity campaigns on television and social media ('keep your credentials secret, please!').<sup>27</sup>

### **Shift from offline to online fraud**

While payment fraud decreased in the period 2014–2018, the COVID-19 crisis resulted in a significant spike in online fraud in 2020, with phishing fraud increasing to €13m, and number spoofing resulting in €26m being channelled via money mules onto the criminal circuit (Figure 6).

Steps are therefore being taken to curtail the recruitment of money mules, for example by raising awareness among those most often targeted (young people) as well as through the administration of sanctions. Banks, meanwhile, are carefully monitoring transactions in order to limit the potential economic damage. At the same time, the various parties involved, including the government and telecom companies, are cooperating to combat internet scams.

### **Mitigating DDoS attacks**

Digital payment transactions require high availability of internet banking and mobile banking. In the Netherlands, the online availability for consumers is high, at 99.9 per cent. This is despite severe DDoS attacks on banking systems. Banks have taken measures to this end, both collectively and individually. At the national level, 17 institutions are cooperating in the public–private Anti-DDoS Coalition (<https://nomoreddos.org>), exchanging knowledge and experience

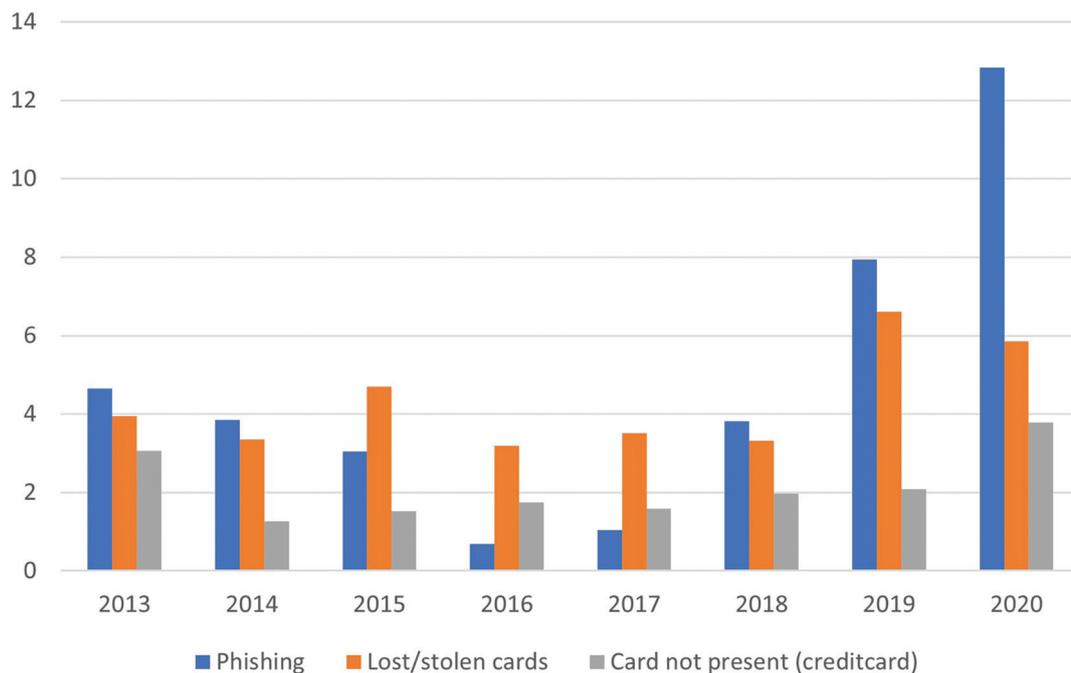


Figure 6: Banking fraud retail payments (€13m), the number of spoofing (€26m) is excluded

Source: Dutch Payments Association (2021) 'Annual Report 2020', available at: <https://www.betaalvereniging.nl/wp-content/uploads/Betaalvereniging-Nederland-Jaarverslag-2020.pdf> (accessed 26th July, 2021)

and taking joint initiatives. As a result, despite an increase in the number of attacks in 2020, most attacks were mitigated. This has helped to reduce the number of phishing attacks.

### Test attacks to assess resilience

To improve their resilience against sophisticated cyber attacks, financial institutions are working together as part of the TIBER-NL programme (short for Threat Intelligence-Based Ethical Red teaming). The programme, coordinated by the Cyber Unit of DNB, employs cyber security companies to stage realistic test attacks on institutions. Institutions cannot pass or fail these tests; the aim is simply to gain insight into their strengths and weaknesses and to identify areas for improvement. Institutions then share their experiences and improvement

plans with each other. This way, the whole sector can benefit.

Building on this approach, the ECB and the other central banks in the EU have drawn up the TIBER-EU Framework.<sup>28</sup>

### Quantum readiness programme

The arrival of the quantum computing means both opportunities and (security) threats for the financial sector and the payment system in particular. To anticipate developments in this field, the Dutch Payments Association has set up a collaborative project in which computer scientists and experts from banks jointly analyse the potential impact of quantum computing on the payment system. Based on their findings, a quantum readiness programme has been drawn up, with seven policy recommendations.<sup>29</sup>

## CONCLUSION

The payments industry in the Netherlands is strongly focused on cooperation between all parties active in the payment chain, including all stakeholders. Experience shows that this approach bears fruit: the Dutch payment industry has some of the lowest (social) costs in Europe. Although fraud increased in 2020, here too cooperation has led to success, helping to limit the damage.

The Netherlands is part of the EU and SEPA. In 2020, the European Commission published its Digital Finance Package, which regulates third-party access to data in the context of open banking and open finance. For retail payments, more important is the Retail Payments Strategy.<sup>30</sup> This strategy aims to eliminate the current scenario of fragmented payment solutions and create an integrated European market for euro payment transactions, with instant payments at its core.

On top of this, in 2020 a number of major European banks took a joint initiative to realise a pan-European payment solution (the European Payments Initiative — <https://www.epicompany.eu>). For the Dutch payment industry, the challenge will be to maintain the level of efficiency it has achieved through its domestic initiatives, rather than slide towards the European average, as this could push up the cost of payments for both banks and end users.

In the longer term, the possible introduction of the digital euro in Europe is an issue. Although Dutch consumers appear to be satisfied with existing payment systems, about half of the consumers in the country indicate that they would like to hold a digital euro based account. These findings align with the results of a public consultation on the digital euro published by the ECB in April 2021.<sup>31,32</sup> The potential consequences this may have for the payment industry in general and for current payment service providers in particular will be an important topic of discussion,

with privacy and security the subject of particular scrutiny.

In recent years, retail payments in the Netherlands have more or less broken even. Due to falling interest rates, however, revenue from retail payments has declined sharply and, as a consequence, payment services have become loss-making for many banks. Although reversing this situation will be a major challenge, it is nonetheless necessary to ensure continuous innovation. The third-party access to payment accounts granted under PSD2 reduces incentives to invest in standards and in the existing infrastructure, and may ultimately affect financial stability. In the context of open banking, it is crucial to provide access to the banking infrastructure in a financially sustainable manner that continues to provide sufficient incentives for innovation.<sup>33</sup>

Furthermore, big techs are starting to assume a substantial position in the market for payments services, competing with banks. This may have major consequences for the business models and strategies of banks and other payment providers, as the concentration of payments data with big techs poses a significant threat to their position. Indeed, DNB has indicated its desire for a review of regulations and supervisory strategies.<sup>34</sup>

This is where important challenges lie for the future of all participants in the payment industry.

## REFERENCES

- (1) Schmiedel, H., Kostova, G. and Ruttenberg, W. (2012) 'The social and private cost of retail payment instruments: A European perspective', ECB Occasional Paper No. 137, available at: <https://www.ecb.europa.eu/pub/pdf/scpops/ecboep137.pdf> (accessed 28th June, 2021).
- (2) DNB (2013) 'Betalen kost geld', *DNB Bulletin*, 11th April, available at: [www.dnb.nl/nieuws/nieuwsoverzicht-en-archieef/dnbulletin-2013/dnb288184.jsp](http://www.dnb.nl/nieuws/nieuwsoverzicht-en-archieef/dnbulletin-2013/dnb288184.jsp) (accessed 12th April, 2021) [requires searching via <https://dnb.archiefweb.eu/>].
- (3) Coase, R.H. (1937) 'The nature of the firm', *Economica (New Series)*, Vol. 4, No 16, pp. 386–405.

- (4) Williamson, O.E. (1985) 'The Economic Institutions of Capitalism', The Free Press, New York, NY.
- (5) Butter, F.A.G. den and Mallekoote, P.M. (2018) 'The payment system as a public good? Lessons learned in the Netherlands', *Journal of Payments Strategy & Systems*, Vol. 12, No. 4, pp. 304–313.
- (6) Butter, F.A.G. den and Wolde, S.A. ten (2014) 'The institutional economics of stakeholder consultation: how experts can contribute to reduce the costs of reaching compromise agreements', in Martini, C. and Bouwmans, M. (eds) 'Experts and Consensus in Social Sciences', Springer, New York, NY, pp. 17–48.
- (7) Baxter, W.F. (1983) 'Bank interchange of transaction paper: legal and economic perspectives', *Journal of Law & Economics*, Vol. 26, No. 3, pp. 541–587.
- (8) Rochet, J.C. and Tirole, J. (2004) 'Two sided markets: an overview', Institut d'Economie Industrielle working paper, available at: [web.mit.edu/14.271/www/rochet\\_tirole.pdf](http://web.mit.edu/14.271/www/rochet_tirole.pdf) (accessed 28th June, 2021).
- (9) Madureira, A., Hartog, A. den, Bouwman, H. and Baken, N. (2013) 'Empirical validation of Metcalfe's law: how internet usage patterns have changed over time', *Information Economics and Policy*, Vol. 25, No. 4, pp. 243–256.
- (10) Zhang, X.Z., Liu, J.J. and Xu, Z.W. (2015) 'Tencent and Facebook data validate Metcalfe's law', *Journal of Computer Science and Technology*, Vol. 30, No. 2, pp. 246–251.
- (11) Liezenberg, C., Lycklama, D. and Nijland, S. (2019) 'Everything Transactions', LannooCampus, Houten.
- (12) Bénabou, R. and Tirole, J. (2003) 'Intrinsic and extrinsic motivation', *Review of Economic Studies*, Vol. 70, No. 3, pp. 489–520.
- (13) Bénabou, R. and Tirole, J. (2006) 'Incentives and prosocial behaviour', *American Economic Review*, Vol. 96, No. 5, pp. 1652–1678.
- (14) 14 Financial Intelligence Unit — The Netherlands (2019) 'Annual Review', available at: [https://www.fiu-nederland.nl/sites/www.fiu-nederland.nl/files/documenten/fiu-nederland\\_jaaroverzicht\\_2019\\_en\\_0.pdf](https://www.fiu-nederland.nl/sites/www.fiu-nederland.nl/files/documenten/fiu-nederland_jaaroverzicht_2019_en_0.pdf) (accessed 28th June, 2021).
- (15) Hartsink, G. (2014) 'Standardisation: A condition *sine qua non* for efficient payment systems', *Journal of Payment Systems & Strategies & Strategies*, Vol. 8, No. 1, pp. 23–29.
- (16) Bank for International Settlements (2012) 'Principles for financial market infrastructures', available at: <https://www.bis.org/cpmi/publ/d101a.pdf> (accessed 28th June, 2021).
- (17) Brits, J.H. and Winder, C. (2005) 'Payments are no free lunch', *Occasional Studies*, Vol. 5, No. 2, available at: <https://www.dnb.nl/publicaties/publicaties-onderzoek/occasional-studies/nr-02-2005-payments-are-no-free-lunch/> (accessed 28th June, 2021)
- (18) Dutch Payments Association (2021) 'Thuiswinkelmonitor: 13.1 million shoppers, population older than 12 years is 14.8 million), Markt Monitor 2020 [infographic]', available at: [https://www.betalvereniging.nl/wp-content/uploads/Infographic\\_Thuiswinkel\\_Markt\\_Monitor\\_2020.pdf](https://www.betalvereniging.nl/wp-content/uploads/Infographic_Thuiswinkel_Markt_Monitor_2020.pdf) (accessed 26th July, 2021).
- (19) Currence (2021) 'Annual Report 2020', available at: <https://www.currence.nl/wp-uploads/2021/05/Currence-Annual-Report-2020.pdf> (accessed 26th July, 2021)
- (20) Bijlsma, M., Crujisen, C. van den and Jonker, N. (2020) 'Consumer propensity to adopt PSD2 services: trust for sale', DNB working paper No. 671, available at: [https://www.dnb.nl/media/v24a2ta0/working-paper-no-671\\_tcm47.pdf](https://www.dnb.nl/media/v24a2ta0/working-paper-no-671_tcm47.pdf) (accessed 28th June, 2021).
- (21) European Commission (2021) 'Digital identity for all Europeans', available at: [https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-digital-identity\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-digital-identity_en) (accessed 28th June, 2021).
- (22) Financial Stability Board (2020) 'Enhancing Cross-border Payments, Stage 1 report to the G20', 9th April, available at: <https://www.fsb.org/2020/04/enhancing-cross-border-payments-stage-1-report-to-the-g20/> (accessed 26th July, 2021).
- (23) Dutch Payments Association (2021) 'Factsheet Betalingsverkeer 2020', available at: <https://factsheet.betalvereniging.nl/> (accessed 26th July, 2021).
- (24) *Economist* (2020) 'Pocket World in Figures', e-book available at: <https://ukshop.economist.com/products/pocket-world-in-figures-2020> (accessed 28th June, 2021), pp. 178–179.
- (25) Panetta, F. (2021) 'At the edge of tomorrow: preparing the future of European retail payments', introductory remarks at the 14th Payment Forum of Suomen Pankki — Finlands Bank, Helsinki, 19th May, available at: <https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210519~6a4523d953.en.html> (accessed 28th June 2021).
- (26) Doeland, M. (2017) 'Collaboration and the sharing of information help reduce payment transactions fraud', *Journal of Payment Systems & Strategies*, Vol. 11, No. 1, pp. 81–85.
- (27) Doeland, M. (2019) 'How to keep payments safe and secure in a changing world', *Journal of Payment Systems & Strategies*, Vol. 13, No. 2, pp. 132–137.
- (28) DNB (n.d.) 'TIBER: working together against cybercrime', available at: <https://www.dnb.nl/en/sector-information/payments/tiber-working-together-against-cybercrime/> (accessed 28th June, 2021).
- (29) Covers, O. and Doeland, M. (2020) 'How the financial sector can anticipate the threats of quantum computing to keep payments safe and secure', *Journal of Payment Systems & Strategies*, Vol. 14, No. 2, pp. 147–156.
- (30) European Commission (2020) 'Digital finance package', available at: [https://ec.europa.eu/info/publications/200924-digital-finance-proposals\\_en](https://ec.europa.eu/info/publications/200924-digital-finance-proposals_en) (accessed 28th June, 2021).
- (31) Bijlsma M., Crujisen C. van der, Jonker, N. and Reijerink, J. (2021) 'What triggers consumer adoption of CBDC?' DNB Working Paper No. 709, available

- at: [https://www.dnb.nl/media/amwfgjey/working\\_paper\\_no\\_709.pdf](https://www.dnb.nl/media/amwfgjey/working_paper_no_709.pdf) (accessed 28th June, 2021).
- (32) European Central Bank (2021) 'Eurosystem report on the public consultation on a digital euro', available at: [https://www.ecb.europa.eu/pub/pdf/other/Eurosystem\\_report\\_on\\_the\\_public\\_consultation\\_on\\_a\\_digital\\_euro~539fa8cd8d.en.pdf](https://www.ecb.europa.eu/pub/pdf/other/Eurosystem_report_on_the_public_consultation_on_a_digital_euro~539fa8cd8d.en.pdf) (accessed 28th June, 2021).
- (33) Bijlsma, M., Bolt, W. and Jonker, N. (2021) 'Regulering toegang betaalinfrastructuur vergt nadere analyse' [Regulation of access to payment infrastructure requires further analysis], *ESB*, No. 4797, 14th May, pp. 244–246.
- (34) DNB (2021) 'Veranderend landschap, veranderend toezicht. Ontwikkelingen in de relatie tussen BigTechs en financiële instellingen' ['Rise of BigTechs requires adjustment in financial supervision'], June, available at: <https://www.dnb.nl/media/eb5oxjke/veranderend-landschap-veranderend-toezicht.pdf> (accessed 28th June, 2021).