

# The digital retail payment market is changing

Nowadays, nine out of ten payments made by Danes in stores are digital. This is due to the significant changes that have occurred in payment behaviour in recent decades. While physical payment cards are the most commonly used solutions among Danes, mobile payments have gained considerable traction in recent years. The growing adoption of mobile payments is reshaping the card payment market in Denmark. As a result, it is relevant to adjust the existing regulation to support secure, resilient and efficient retail payments in Denmark.

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## Increasing use of international payment cards and mobile wallet payments

International debit cards from Visa and Mastercard are currently the most widely used payment cards in Denmark. This is due in part to the rapid adoption of wallet payments on mobile phones, which now account for around one in three payments in physical commerce. This trend reflects the fact that Danes prefer payment solutions that they find convenient to use.



## Relevant to adjust regulation of Dankort to support secure and efficient card payments

As Dankort payments account for a decreasing share of card payments in Denmark, it is relevant to adjust the regulation. This applies to both the Dankort pricing regulation and access for more acquirers to process card payments with Dankort. This can support secure, resilient and efficient card payments in Denmark in the future.



## More instant payments in physical commerce can increase the resilience of retail payments in Denmark

Payment solutions based on instant payments use a different infrastructure and can involve fewer parties. Wider adoption of instant payment solutions in physical commerce can therefore make retail payments in Denmark more efficient and resilient.

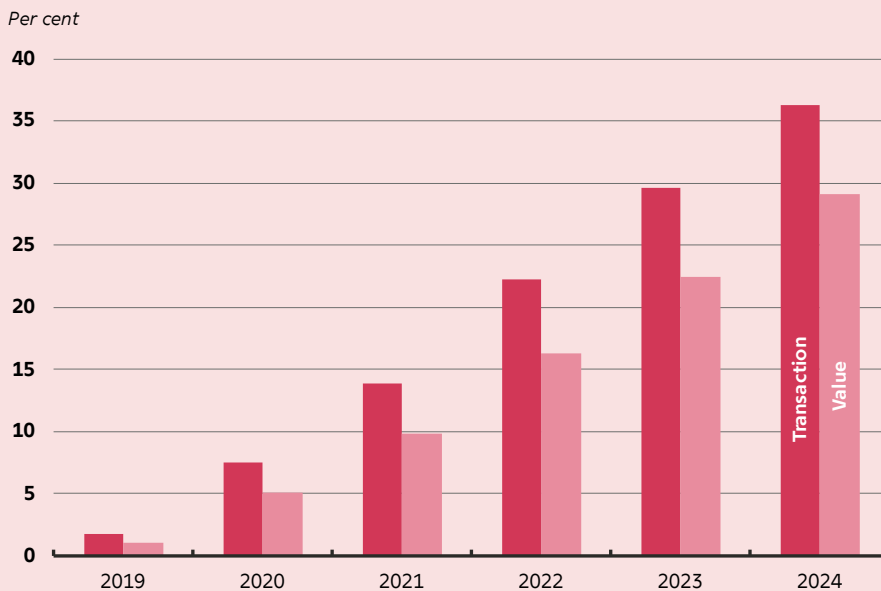
## Why is it important?

One of Danmarks Nationalbank's main tasks is to help ensure that payments can be made safely and efficiently in Denmark. As part of this work, Danmarks Nationalbank regularly analyses the structures and dynamics of the Danish retail payment market, including trends in citizens' payment behaviour and preferences.

## Main chart

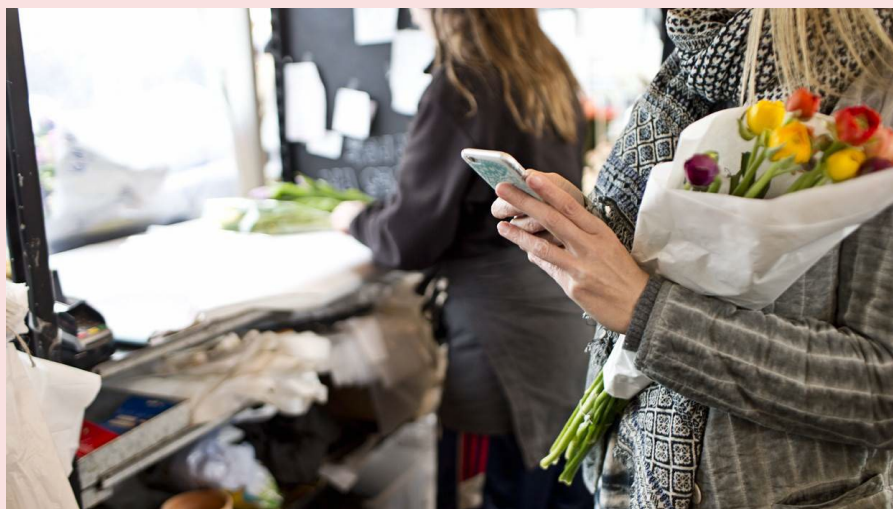
### Danish citizens are increasingly using mobile phones for payments in stores

*Total percentage of card payments in physical commerce made with a mobile wallet solution*



Note: Card payments in physical commerce via mobile wallet solutions are primarily made with Apple Pay and Google Pay in Denmark.

Source: Danmarks Nationalbank.



## Keywords

Payments

Digitalisation

Financial regulation

# 01

## Introduction and summary

The market for payments between individuals and businesses, also known as the retail payment market, has undergone major changes in recent decades. This is reflected in the fact that nine out of ten payments in physical stores in Denmark today are made digitally, whereas cash used to be the most common way to pay. These changes have been driven by technological development, changing consumer preferences, new products from the private sector and demands from the public sector, see chart 1.

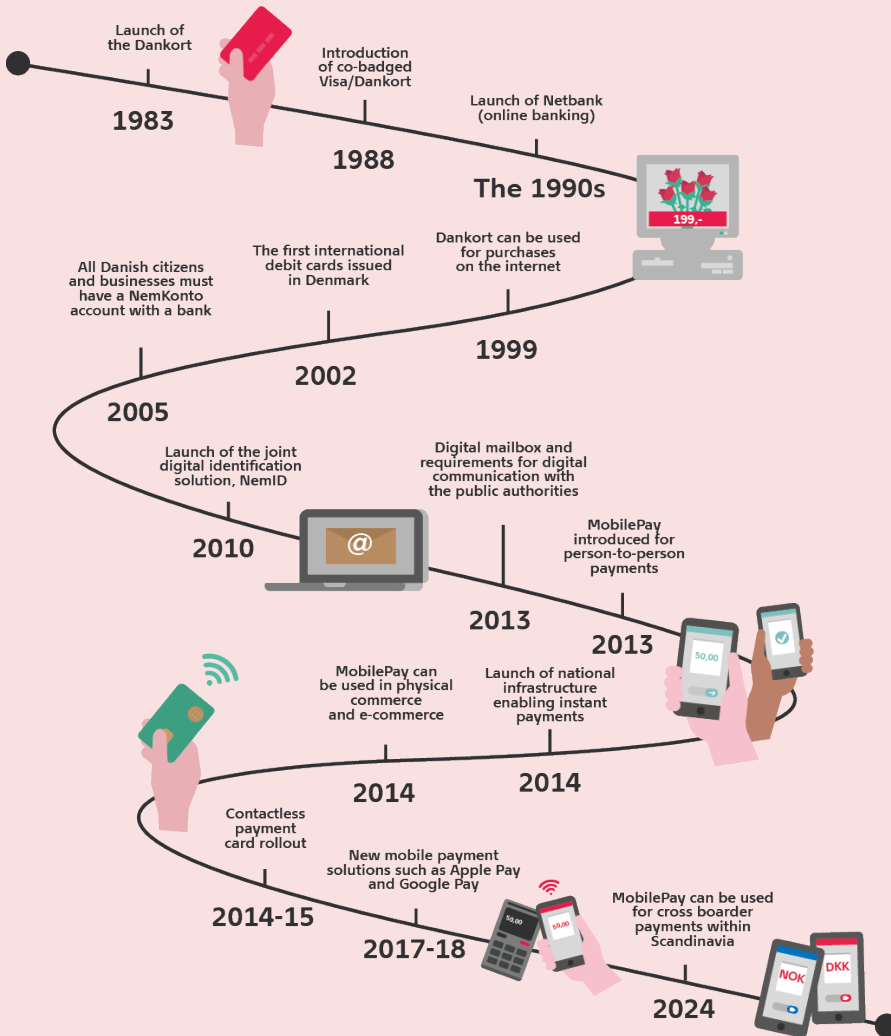
The shift from cash and cheque payments to digital payments started after the introduction of Dankort in 1983. In recent years, the trend has changed character with the increasing use of mobile payment solutions, including MobilePay and Apple Pay. The new payment solutions reflect an ongoing adaptation to an increasingly digitalised society, where fast, secure and easy ways to pay are important for both consumers and merchants.

This analysis focuses specifically on the two most used retail payment solutions in Denmark, namely card and mobile payments. The analysis maps key parties, structures and dynamics in the card payment market as well as individuals' use of card and mobile payments – both to businesses and to other individuals.

Chapter 2 describes the general characteristics of the digital payment market in Denmark and the various digital payment solutions. Chapter 3 analyses citizens' use and preferences for digital payment solutions. Chapter 4 describes the different players and fees in the card payment market, including the incentives and dynamics this creates in card payment systems. Chapter 5 focuses on the framework governing Dankort, the impact of Dankort on the structure of the card payment market in Denmark and the socio-economic costs of card payments. Chapter 6 reviews upcoming policy initiatives in the card payment market. Chapter 7 discusses instant payments, including how a wider adoption of instant payment solutions can make retail payments in Denmark more efficient and resilient.

CHART 1

Digitalisation and payments through time



Source: Danmarks Nationalbank.

## Changing payment habits affect the retail payment market

The use of digital payment solutions in Denmark is on the rise and Danish citizens are among those in the world who use digital payment solutions the most, see chapter 2. In 2024, citizens in Denmark made around 2.7 billion payments with payment cards, equivalent to an average of 461 card payments per person, which is an increase of around 35 per cent since 2016.

This trend reflects, among other things, that an increasing percentage of payments takes place online, where it is only possible to use digital payment solutions, such as payment cards. The increase is due to citizen making more

online purchases, but also that payments that used to be made in physical and serviced commerce are increasingly being made online, for example via supermarket apps, even when the consumer is physically present in the store, see chapter 2.

This trend also shows that digital payment solutions are widely used across geographic regions and age groups in Denmark, see chapter 3. The broad anchoring among all age groups indicates a high level of digitalisation across the population, where previously there was a clear tendency for younger generations to use digital solutions the most. This age difference has now broadly levelled out.

### **Danes prefer solutions that are quick and easy to use**

For over 20 years, the physical payment card has been the most used payment solution for individuals, see chart 2 in chapter 2, and payment cards are still consumers' preferred solution when paying in physical stores, see chapter 2.

In recent years, however, mobile phones have seen increasing use among consumers, especially through the use of wallet solutions such as Apple Pay and Google Pay.<sup>1</sup> In 2024, payments with one of the wallet solutions accounted for approximately one third of all payments made by individuals in physical commerce.

This trend reveals a shift in people's payment behaviour and emphasises that Danes' choice of payment solution is largely driven by convenience, such as being able to pay without carrying anything other than their phone. Whether paying by payment card or mobile phone, people prefer digital solutions that they find quick and easy to use, see chapter 3.

### **Changes in payment behaviour and preferences in Denmark impact the card payment market**

Wallet solutions have not only influenced people's payment behaviour and -preferences, but also the structure of the card payment market in Denmark. This is reflected in the fact that in recent years, international payment cards from Visa and Mastercard have been used more than Dankort, which had been the most widely used payment card in Denmark since its launch in 1983, see chapter 4. This is partly because in most cases wallet payments using Apple Pay or Google Pay are currently made with an international payment card, see also chapter 2.

As a result of the shifts in the card payment market, calculations indicate that the socio-economic costs per payment for Dankort are approximately the same as for payments with the international debit cards from Visa and Mastercard, see chapter 5. From a socio-economic point of view, Dankort is no longer the most cost-effective payment card, as Danmarks Nationalbank's latest cost analysis from 2016 otherwise found. The change is due to the fact that the fixed costs of running the Dankort system are now allocated across significantly fewer payments, whereas for international debit cards, there are significantly more payments on which the societal costs can be allocated.

Although Dankort is no longer the most cost-effective payment card per payment for society, in most cases, Dankort is still the cheapest payment card for merchants to accept. This is because Dankort is subject to Danish pricing regulation of the merchant service charge in serviced retail and physical commerce, see chapter 5. However, there are indications that the current

<sup>1</sup> A wallet is a digital wallet, typically available as an app on smartphones. It allows the user to store their payment cards digitally on their phone and use them for payments at payment terminals in physical stores and online.

Dankort structures, including the fact that only Nets can acquire Dankort payments, potentially increase the total costs associated with card payments in Denmark, see chapter 5.<sup>2</sup> Nets' role as the sole acquirer of Dankort payments may also have contributed to Nets' current market share of between 75-80 per cent of the total market for the number of payments acquired in Denmark.<sup>3</sup>

### **Proposal for new legislation in the card payment market**

At the end of 2024, the Danish Financial Supervisory Authority sent out a new bill for consultation with a legislative amendment clarifying that payment systems must give payment service providers, such as card acquirers, access to their systems. In the bill, the Ministry of Industry, Business and Financial Affairs notes that the purpose of the amendment is to ensure a level playing field for card acquiring in Denmark, e.g. in relation to acquiring Dankort, see chapter 6.

If the bill is passed, more acquirers than Nets may be able to offer acquirer services for Dankort. More acquirers of Dankort could potentially increase the resilience of card payments in Denmark and reduce the overall costs of accepting card payments across card schemes for merchants, see also chapter 6.

### ***Adjustments to Dankort price regulation can contribute to increased resilience***

The Ministry of Industry, Business and Financial Affairs has announced that several new initiatives are underway to strengthen the regulatory framework for the card payment market, see chapter 6. Among these initiatives is a revision of the Danish price regulation, which currently only covers Dankort.

In this context, including development costs in the cost base that determines the regulatory revenue cap for Dankort could be considered. Such a change could create greater incentive to invest in new functionalities and increased resilience against cyberattacks and new forms of fraud, see chapter 5.

The current Dankort pricing regulation only covers merchant service charges in physical and serviced retail trade. As physical commerce accounts for a decreasing share of Dankort payments, the costs of operating the Dankort system in physical commerce are spread over fewer transactions. This can lead to higher merchant service charges for merchants if the number of Dankort transactions in physical commerce declines more than the cost base, see also chapter 5.

If the goal is to ensure low costs for merchants with respect to Dankort payments, and it is politically desired to price regulate Dankort, it may be relevant to include Dankort payments online and in self-service check out and vending machines in the pricing regulation, see chapter 6. However, the regulation must be weighed against the disadvantages the price regulation generally entails.

### **Wider adoption of instant payments can make retail payments in Denmark more efficient and resilient**

Mobile phones are expected to be used even more for retail payments in Denmark in the future. Today, mobile payments in physical stores are mainly based on card payments and only to a lesser extent on instant payments, i.e. a

<sup>2</sup> In Denmark, Nets is the largest card acquirer. Nets owns Dankort and is also the only card acquirer that offers payment acquiring of Dankort

<sup>3</sup> The total market covers both physical commerce, self-service environments, and online trade. Nets' market position should be seen in the context that Nets is currently the sole acquirer of Dankort, which in 2024 accounted for nearly 40 per cent of the total number of payments in Denmark, see chapter 5. Nets' market share has been declining in recent years.

credit transfer directly from the customer's bank account to the store's bank account within seconds.

If more payments in the future are based on instant payments, both in physical commerce and for online purchases, it will make Danish retail payments more efficient. This is because instant payments can involve fewer parties and therefore a fewer parties need to be involved and compensated for processing the payment, compared to payments based on payment cards.

In addition to fewer dependencies, potentially due to the involvement of a few parties, instant payments use a different underlying payments infrastructure than card payments. Therefore, wider adoption of multiple payment solutions that use separate and different infrastructures can increase the resilience of retail payments in Denmark, as consumers have access to other widely used solutions if one particular payment solution is unavailable.

# 02 The market for digital retail payments in Denmark

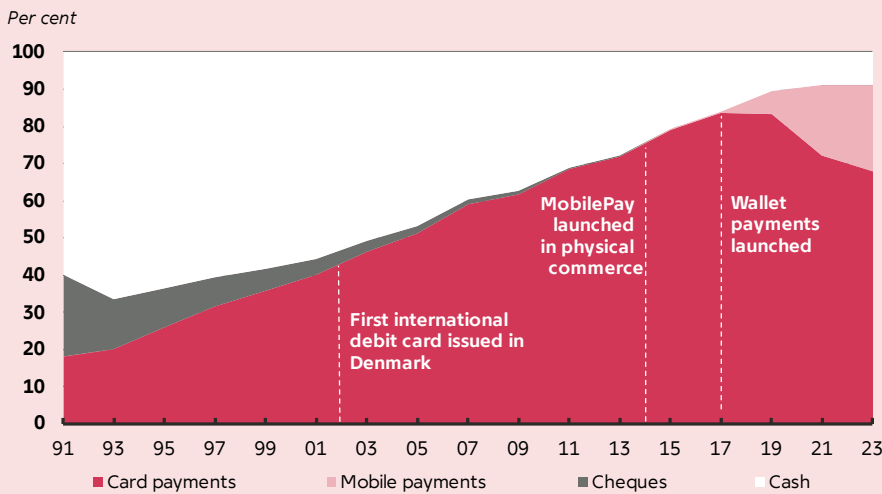
Retail payments include payments made by consumers and businesses, see box 1. Retail payments, especially consumers' purchases of goods and services, are most often made in physical stores and online, and the most commonly used payment solutions are physical payment cards, mobile payments and cash.

In 2023, 91 per cent of the total value of all payments made by consumers in physical stores was made using a digital payment solution, while 9 per cent was made using cash, see chart 2. Internationally, Denmark is one of the countries where consumers use digital payment solutions the most, see chart 3. In addition, an increasing percentage of consumers' payments is made online, see chapter 3. This means that the overall Danish market for digital retail payments continues to grow, even though the percentage of digital payments in physical commerce has remained fairly stable since 2021.

CHART 2

## 91 per cent of total revenue in physical stores comes from digital payments

Total revenue in the Danish physical retail trade by payment solution

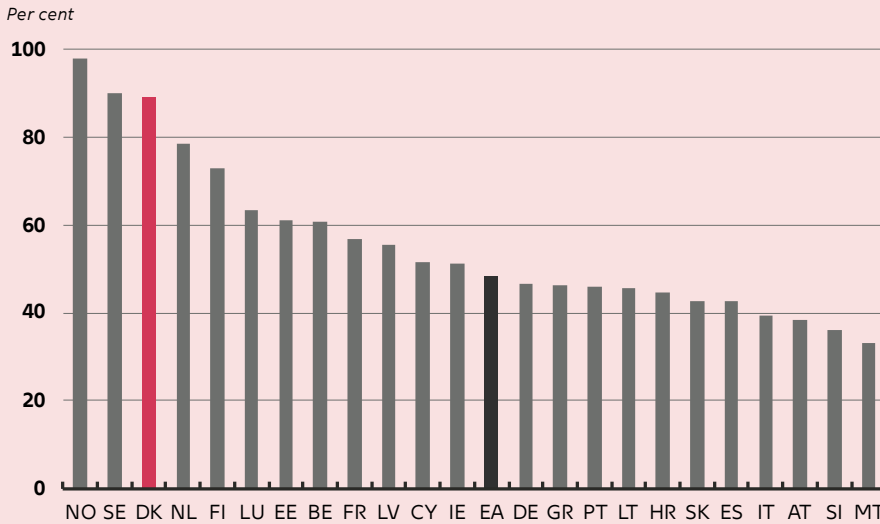


Note: Mobile payments include several different mobile payment solutions, including MobilePay, Apple Pay and Google Pay. Dankort and Visa/Dankort were launched in 1983 and 1988 respectively.

Source: Danmarks Nationalbank.

CHART 3

Denmark is one of the countries with the highest share of digital payments



Note: Percentage of payments in physical commerce that are not made using cash. Data relate to 2024 with the exception of Denmark, Norway and Sweden where the latest observation is from 2023. The method of assessment in Norway and Sweden differ from Denmark and Europe payment diary as respondents only answered with details of what type of payment solution they used for their last payment. In Danmarks Nationalbank's survey, respondents report their payments over a full day, see box 3.

Source: European Central Bank, Norges Bank, Sveriges Riksbank, Danmarks Nationalbank and own calculations.

The increasing use of digital payment solutions reflects the fact that consumers in Denmark are opting for digital payments and not that they are unable to pay with cash. This is because physical stores in Denmark have been legally obliged to accept cash since 1984 as a result of the 'cash obligation'.<sup>4</sup> The purpose of the cash payment obligation was, among other things, to ensure competition with digital payments and to allow cash payments in physical commerce in the future. At present, citizens in Denmark are the only ones in Europe who have the legal right to pay with cash in physical stores.<sup>5 6</sup>

<sup>4</sup> There are a number of exceptions to the cash obligation. These exceptions include remote trade, including e-commerce and self-service environments, such as unmanned petrol stations and short-term events, such as markets and festivals. Businesses are also exempt from the obligation to accept cash payments from other businesses. Moreover, staffed stores are not required to accept cash between 10:00 PM and 06:00 AM. In areas with an increased risk of robbery, the obligation to accept cash does not apply from 08:00 PM.

<sup>5</sup> See Danmarks Nationalbank, The role of cash in a society with low usage of cash, *Danmarks Nationalbank Analysis*, No. 21, November 2023 ([link](#)).

<sup>6</sup> Since 1 October 2024, physical stores in Norway have been obliged to accept payments in cash, see Norges Bank, The right to pay cash ([link](#)).

## BOX 1

### Concepts relating to retail payments

**Retail payments** are payments between consumers, businesses and public authorities. For example, they can include consumers' purchases of goods and services, but also salary and tax payments made by businesses.<sup>1</sup> However, retail payments do not include payments and transfers between financial institutions, also known as interbank payments.

**Means of payment** are independent objects of value that can be used as payment for goods and services and can be transferred directly between two parties. Both cash and bank deposits are examples of means of payment.

**Payment instruments** allow the holder to transfer means of payment to another party, for example via a payment card or online banking. Digital payment instruments can therefore be thought of as tools that provide access to the instrument holder's payment account at a bank.

**Payment services** are primarily services that help move funds from a payer to a payee. Credit transfers are an example of a payment service that credits a payee's payment account, just as a direct debit is a payment service that debits a payer's payment account upon instruction from the payee. Betalingservice and Leverandørservice are examples of payment services with direct debit schemes.

**Payment solutions** is often used as a collective term for technology, payment instruments and payment services that enable a payment. Examples of payment solutions are payment cards from Dankort, Visa and Mastercard, MobilePay and Betalingservice.

<sup>1</sup> See What are retail payments, European Central Bank ([link](#)).

## Characteristics of the retail payment market

Like other markets, the Danish retail payment market has a demand and supply side. Demand relates to which payment solutions consumers prefer to use. Supply relates to the payment solutions that consumers are offered by their bank and that merchants choose to accept.

A number of factors shape the overall structures and dynamics of the market. A key factor is *network effects*. Demand for a payment solution is strongly influenced by the number of users and payments. The more consumers use a particular payment solution, the more attractive it becomes for merchants to accept, and vice versa. This interdependency creates a self-reinforcing dynamic where a payment solution can gain rapid adoption once a critical level of users and payments is reached.

Another significant factor is the high *fixed costs* associated with developing and operating the networks and systems that enable the exchange of payments between individuals, businesses and financial entities. For a payment solution to be economically viable, it requires a large number of payments.

The combination of network effects and high fixed costs means that there is often only room for a limited number of payment solutions on the same market.

Retail payments typically require cooperation between different payment service providers. This creates *dependencies between parties* who need to agree on payment obligations, coordinate technical standards and comply with sets of rules. Dependencies between parties have been increasing as the payments landscape has evolved towards more digital payments, which typically involve more parties than cash or cheques.

Consumers and merchants have *different responses to fees* for using and accepting payment solutions. Consumers are typically price-sensitive and may quickly switch payment solutions if fees are imposed, while merchants are more likely to accept fees if the payment solution is widely used and therefore results in higher sales or lower consumption of resources for the retailer in connection with customer payments.<sup>7</sup> Generally speaking, this means that in the business models of most payment solutions, the fees are mostly borne by the retailer.<sup>8</sup>

Finally, the Danish payment market is subject to *regulation* to ensure competition, innovation, consumer protection and the maintenance of a stable financial infrastructure. However, regulation can also pose barriers to new parties wishing to enter the payment market.

## Digital payment solutions in Denmark

The payment market has developed rapidly and new digital solutions are constantly being introduced, including mobile payment solutions such as MobilePay, Apple Pay and Google Pay. This means that Danish citizens and businesses today have access to a wide range of payment solutions, see box 2. The most used retail payment solutions in Denmark are credit transfers and card payments, see chart 4.

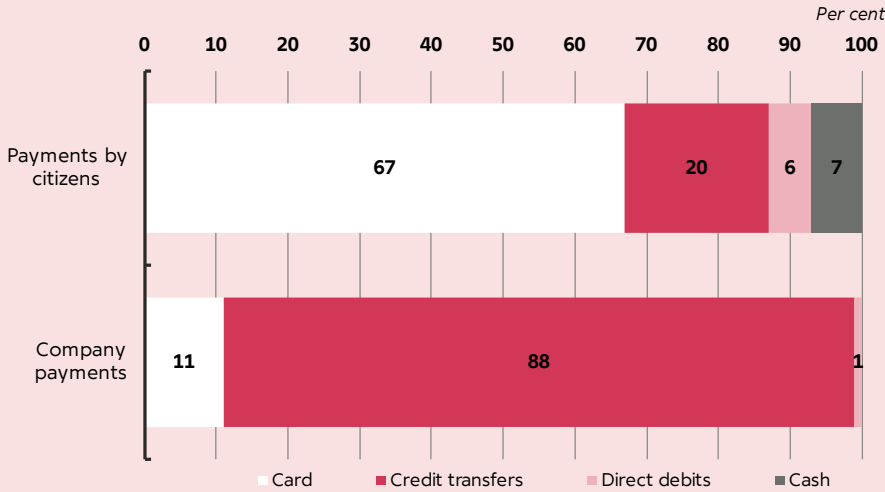
<sup>7</sup> In 2005, Danish legislation made it possible for merchants to charge customers a fee of kr. 0.50 when paying with Dankort. The fee prompted both popular and political opposition and was quickly withdrawn so that consumers did not pay directly for using Dankort.

<sup>8</sup> This should also be seen in light of the fact that in the EEA, merchants are generally not allowed to surcharge card payment fees on to consumers, see box 3, but even before the introduction of the ban, it was mainly merchants who bore the costs of card payments.

CHART 4

**Citizens primarily use payment solutions based on card payments, while businesses mainly use credit transfers**

Relative distribution of the total number of payments made by individuals and businesses in 2023



Note: Data covers the total number of payments across physical commerce, e-commerce and between private individuals and businesses. In 2023, individuals and businesses made 3,814 million and 574 million payments respectively. The number of cash payments made by businesses is unknown but is estimated to be very low.

Source: Danmarks Nationalbank.

BOX 2

**Digital payment solutions in Denmark**

**Credit transfers**

Credit transfers are used to transfer money directly from one bank account to another and are widely used by both individuals and businesses to pay larger bills. In Denmark, credit transfers are primarily made via online banking or mobile banking, where the payer enters the amount, the payee’s account number and any additional information.

The transfers can be conducted as instant payments, which are credit transfers where the payee receives the transfer immediately, or as regular transfers that are processed during the bank’s business hours. Regular domestic bank transfers in Denmark are typically available to the payee on the same day or on the next banking day at the latest.

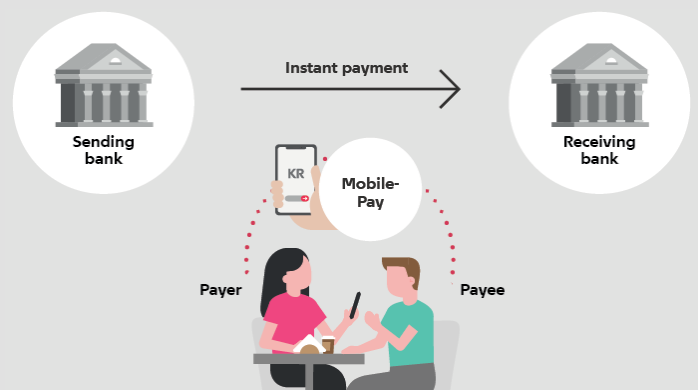
**Direct debits**

Direct debits, such as Betalingsservice, are one of the most common solutions for paying recurring bills and making instalment payments among consumers in Denmark. When an account holder registers a recurring bill with Betalingsservice, the payment is made automatically as the payee has been authorised to withdraw the amount due directly from the consumer’s bank account without any further action by the payer.

Continues ...

CHART B1

**Payments with MobilePay in physical commerce and to private individuals are mainly based on instant payments**



Note: When using MobilePay for e-commerce, payment is mainly made as a card payment.

... continued

A similar service, Leverandørservice, is available for businesses. With Leverandørservice, a payee can collect payments directly from another company, provided that a payment agreement is in place. This solution is mainly used for recurring payments for goods and services.

#### Payment cards in the Danish market

There are several different types of payment cards, each with their own characteristics. In Denmark, the most common payment cards are either from an international or national card scheme and are debit or credit cards.<sup>1</sup>

#### International and national payment cards

International payment cards in Denmark are issued under licence from international card companies, such as Visa and Mastercard, and can be used all over the world. Conversely, national payment cards can typically only be used within the country where they are issued. In Denmark, Dankort is an example of a national payment card that can only be used at merchants in Denmark, the Faroe Islands and Greenland.<sup>2</sup> Similarly, Akiliut is a payment card that can only be used in Greenland.

National payment cards are typically co-badged with an international payment card so that the cardholder can use the same payment card for payments outside the country.<sup>3</sup> This is the case with Visa/Dankort and Mastercard Dankort.

#### Debit and credit cards

A payment card can be a debit or credit card.

A *debit card* is a payment card that is directly linked to the cardholder's bank account. When a debit card is used, the amount is typically debited from the cardholder's account immediately after the transaction or on the following banking day. In Denmark, Mastercard Debit, Visa Debit, Dankort, Visa/Dankort and Mastercard Dankort are the most common debit cards.

For Mastercard Debit and Visa Debit, an online balance check is performed, ensuring that the cardholder cannot overdraw the linked account. This is not the case with Dankort, which is a debit card without balance check. To be issued a Dankort, or a co-badged version, the cardholder must typically be over 18 years old and be credit-rated by a bank.

A *credit card* gives the cardholder access to credit. This means that when the credit card is used, the amount is initially charged from a separate credit account. At a later date, e.g. at the end of the month, a cumulative charge is made against a linked bank account to cover the credit drawn on the separate credit account. The maximum amount and duration of the credit is typically agreed between the cardholder and the card issuer. Examples of credit cards in Denmark are Mastercard Credit, Visa Credit, Eurocard and American Express.

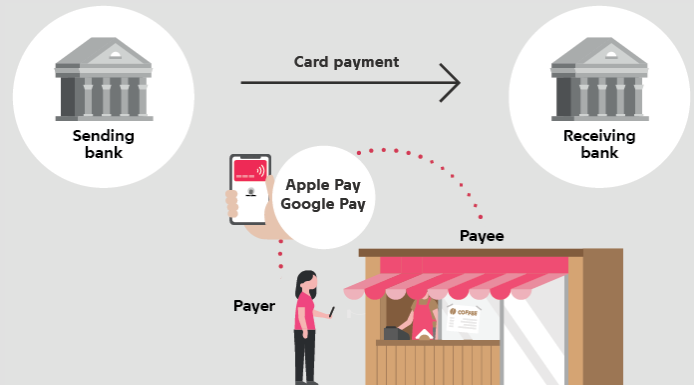
#### Mobile payments in Denmark

The most widely used mobile payment solutions in Denmark are MobilePay, Apple Pay and Google Pay. When citizens pay using their mobile phones, it can vary whether the underlying payment is made as a credit transfer or a card payment. This is because mobile payment solutions use different payments infrastructures to process payments.

Continues ...

CHART B2

Wallet payments, such as Apple Pay and Google Pay, are based on card payments



... continued

#### **Mobile payments based on credit transfers**

When individuals use MobilePay for payments between each other and to merchants in physical commerce, the underlying payment is typically an instant payment from the account holder's bank account to the payee's bank account. This is an instantaneous credit transfer where the payee's account is credited immediately, see chart B1.

#### **Mobile payments based on card payments**

When individuals use the mobile payment solutions Apple Pay or Google Pay, the underlying payment is always a card payment, see chart B2. These solutions use the same technology as contactless card payments. This means that Apple Pay and Google Pay payments can be made on the same card terminals that merchants already use to accept card payments with physical payment cards. Payments with MobilePay in e-commerce are primarily made as card payments.

<sup>1</sup> In addition to national and international payment cards, debit and credit cards, *prepaid* and *postpaid* payment cards are also used in Denmark. An example of prepaid cards are gift cards, where an amount is paid in advance and deducted as it is used. Postpaid cards are typically limited to purchases at a single retailer or chain, such as fuel cards, and work by the consumer making purchases on credit and paying the total amount later.

<sup>2</sup> Dankort can also be used in some German border stores and some foreign online stores.

<sup>3</sup> A co-badged payment card typically combines two different card brands on the same physical payment card. Visa/Dankort and Mastercard Dankort are examples of co-badged payment cards in Denmark.

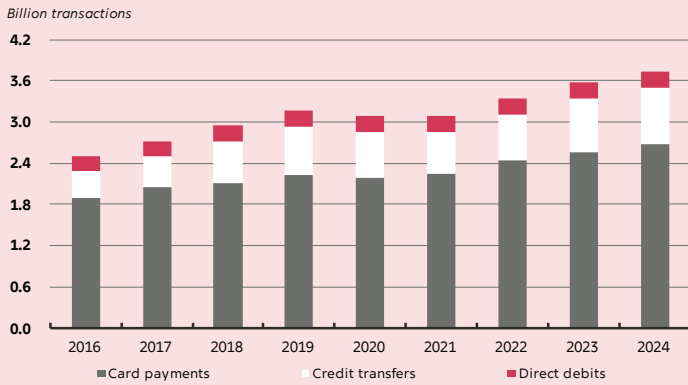
## Increasing use of digital payment solutions in Denmark

Both individuals and businesses are making more digital payments, see charts 5 and 6. The increase has been driven in particular by consumers' increasing use of card payments, which has risen by approximately 806 million annual transactions since 2016; equivalent to an increase of approximately 42 per cent. In addition, the number of credit transfers has increased, inter alia as a result of citizens' increasing use of mobile payments, which are based on instant payments, e.g. MobilePay. The increasing use of digital payments contrasts with the fact that cash payments are becoming less frequent.<sup>9</sup>

<sup>9</sup> See Danmarks Nationalbank, The role of cash in a society with low usage of cash, *Danmarks Nationalbank Analysis*, No. 21, November 2023 ([link](#)).

CHART 5

**Increasing use of card payments among private individuals**

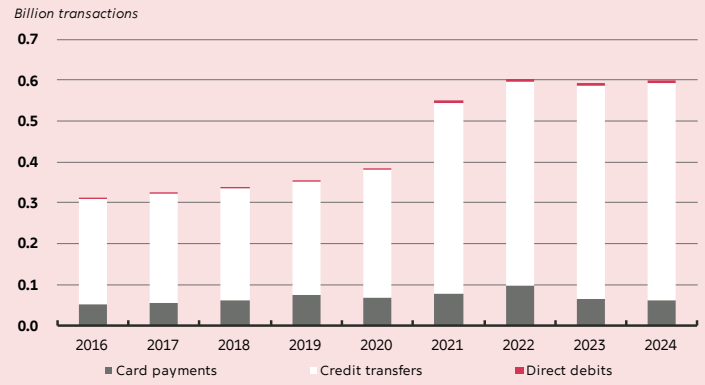


Note: Card payments include all transactions with Danish-issued payment cards for private individuals, including cash withdrawals. Credit transfers include credit transfers made by private individuals and direct debits include payments sent by private individuals via direct debit (in particular Betalingsservice).

Source: Danmarks Nationalbank and own calculations.

CHART 6

**Businesses mainly use credit transfers for digital payments**



Note: Card payments include all transactions with Danish-issued payment cards for businesses, including cash withdrawals. Credit transfers include credit transfers made by companies and direct debits include payments sent by companies via direct debit (in particular Leverandørservice).

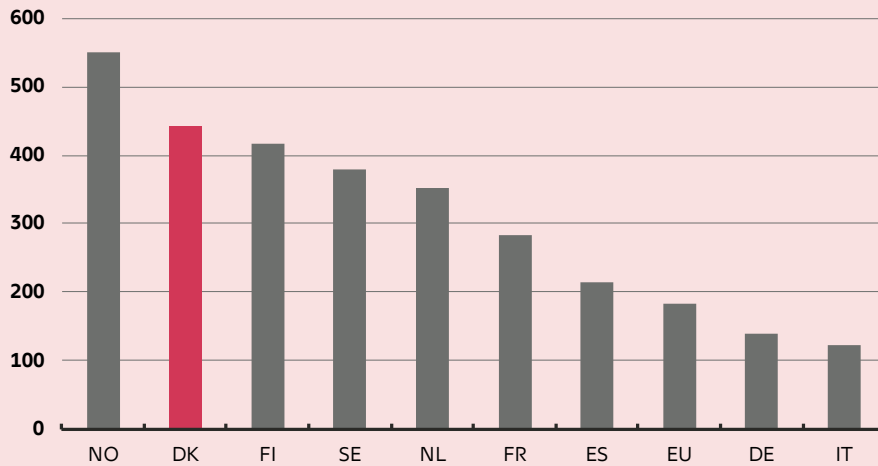
Source: Danmarks Nationalbank and own calculations.

In 2024, over 2.7 billion card payments were made with payment cards issued by Danish banks, see table 1. This equates to each individual making around 461 transactions per year or about 9 transactions each week. This makes Denmark one of the countries with the most card payments per capita, see chart 7. The total card turnover with payment cards issued in Denmark was just under kr. 831 billion in 2024, which is an increase of over 38 per cent since 2016, see table 1.

CHART 7

Denmark is one of the countries with the most card payments per capita

Card payments per capita



Note: Annual number of card payments per capita in 2023. The statistic covers both private individuals and businesses. The difference between Norway and Denmark should be seen in the context that payments in physical stores using the Norwegian mobile payment solution, Vipps, are primarily based on card payments, whereas payments in physical stores using MobilePay in Denmark are generally based on instant transfers, i.e. credit transfers. The figures for Norway, Denmark and Sweden include cash withdrawals.

Source: European Central Bank, Statistics Denmark, Norges Bank, Statistics Norway, Sveriges Riksbank, Statistics Sweden, Danmarks Nationalbank and own calculations.

TABLE 1

Increase in Danes' use of payment cards

	2016	2017	2018	2019	2020	2021	2022	2023	2024
Number of payments (millions)	1.941	2.111	2.169	2.300	2.247	2.332	2.531	2.617	2.747
Of which private individuals	1.891	2.055	2.108	2.227	2.179	2.256	2.436	2.551	2.686
Of which business customers	50	55	61	73	68	76	96	65	61
Total value (kr. billion)	602	661	665	687	664	718	782	797	831
Of which private individuals	563	616	616	632	617	664	715	739	773
Of which business customers	39	45	49	54	47	55	66	59	59
Average spend per payment (kr.)	310	313	306	299	296	308	309	305	303
Average no. of payments per individual	340	367	375	396	386	399	431	441	461
Average spend per individual (in kr. 1,000)	105	115	115	118	114	123	133	134	139

Note: Including e-commerce.

Source: Danmarks Nationalbank and Statistics Denmark.

Approximately 93 per cent of all card turnover in Denmark was generated by private individuals in 2024, while the remaining approximately 7 per cent was generated using a payment card issued to businesses, see table 1.<sup>10</sup> The breakdown reflects that when it comes to business-to-business payments, these are most often handled through credit transfers and inpayment forms, particularly when it comes to paying larger bills.<sup>11</sup> Company card payments are therefore typically limited to small purchases made by company employees.

## International cards make up an increasing share of payment cards in Denmark

Since 2009, the number of payment cards issued in Denmark to private individuals has increased from around 7.1 million to almost 10.1 million.

The increase is mainly due to the fact that the number of international debit cards, such as Mastercard Debit and Visa Debit, has quadrupled since 2009, see chart 8. Conversely, the number of pure Dankort, i.e. without co-badged Dankort (Visa/Dankort and Mastercard Dankort), has declined about 85 per cent since 2009, while international credit cards have decreased approximately 15 per cent. The number of co-badged Dankort cards increased between 2009 and 2014, but has since remained fairly constant.

This shows a significant development in the payment card market, where Dankort – including co-badged versions – previously accounted for around 55 per cent of payment cards issued, but now accounts for around 45 per cent, see chart 9. The payment card market in Denmark is therefore increasingly influenced by international operators.

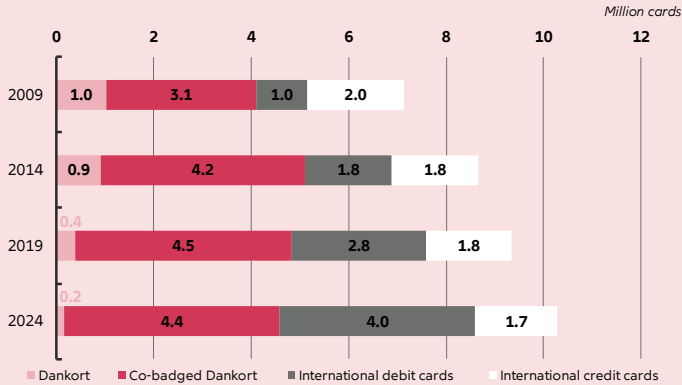
<sup>10</sup> In several cases, payment cards issued to private individuals can be used for payments related to business activity. This is true for self-employed businesses, for example, which is why business payments are expected to make up a larger share of total card payments.

<sup>11</sup> See Danish Payments Council, Business-to-business payments entailed social costs of kr. 4.2 billion, *Analysis from Danish Payments Council (link)*.

CHART 8

**The number of international debit cards issued in Denmark has quadrupled since 2009**

Total number of payment cards issued in Denmark by card type

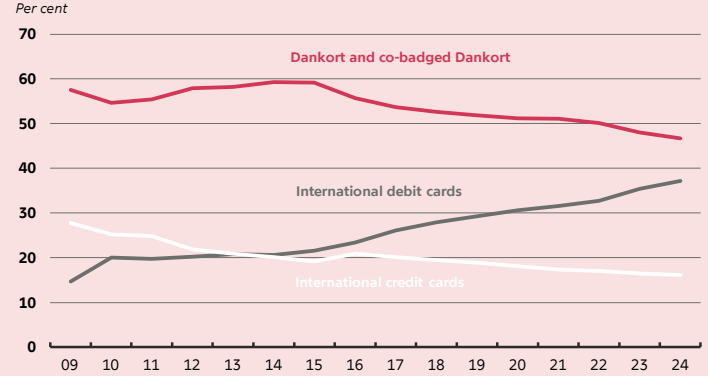


Note: Co-badged Dankort is a payment card that contains both a Dankort and an international payment card (Visa/Dankort and Mastercard Dankort).  
Source: Danmarks Nationalbank.

CHART 9

**International payment cards account for over half of payment cards in Denmark**

Percentage of issued payment cards in Denmark by card type



Note: Co-badged Dankort is a payment card that contains both a Dankort and an international payment card (Visa/Dankort and Mastercard Dankort).  
Source: Danmarks Nationalbank.

## Retail is increasingly moving online

When Danes use their payment cards, it increasingly happens online. It is partly because Danes are shopping more online, but also because more consumers are using online card payments to pay for recurring subscriptions, such as mobile phone subscriptions, or for streaming services that are charged automatically.<sup>12</sup>

In addition, more payments are moving from physical and serviced retail trade to online payments, even if consumers are physically present at the point of sale. This applies, when paying with supermarket apps, for example, where consumers scan goods and pay with their phone, or when drivers link a payment card to their licence plate to pay for fuel, parking, ferry tickets or bridge tolls.

In 2024, it also became possible to use mobile phones as an alternative to the Rejsekort travel card when paying for public transport throughout Denmark, which will contribute to more online card payments in the future. This is because a separate online card payment is made after each journey when consumers use the new mobile solution.<sup>13</sup>

The increased use of mobile payments, for example via supermarket apps, has therefore also contributed to online card turnover accounting for a growing percentage of total card turnover since 2016, see chart 10. In 2024, online payments accounted for around 33 per cent of total card turnover.

Online payments totalling around kr. 278 billion were made in 2024, meaning they have doubled since 2016. Online card turnover mainly involved Danish

<sup>12</sup> Typically, a distinction is made between card payments made at a physical point of sale on a card terminal (point of sale) and payments where the consumer does not pay on a card terminal, but online (card not present), for example through supermarket apps or on a website.

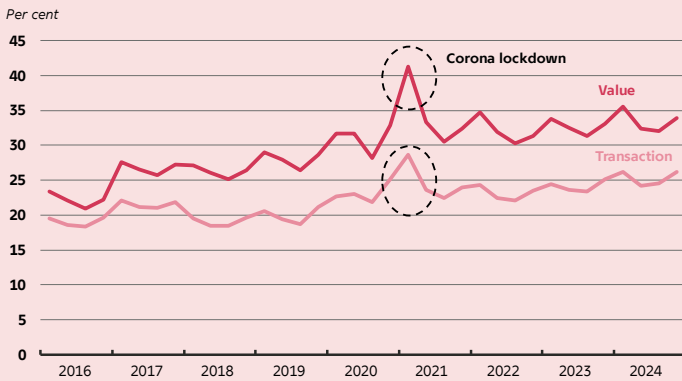
<sup>13</sup> In contrast, the payment when using the physical Rejsekort, occurs by prepaying the card for multiple journeys. This can be done either by paying at a physical self-service vending machine or as an automatic card payment when the balance on the card is low, if the cardholder has set up a 'top-up agreement'.

companies. In 2024, Danish companies generated around kr. 200 billion in online sales, corresponding to approximately 71 per cent of total online card turnover, see chart 11.

CHART 10

**Online payments account for an increasing percentage of total card payments**

Total card turnover generated online with payment cards issued in Denmark as a percentage of total card turnover

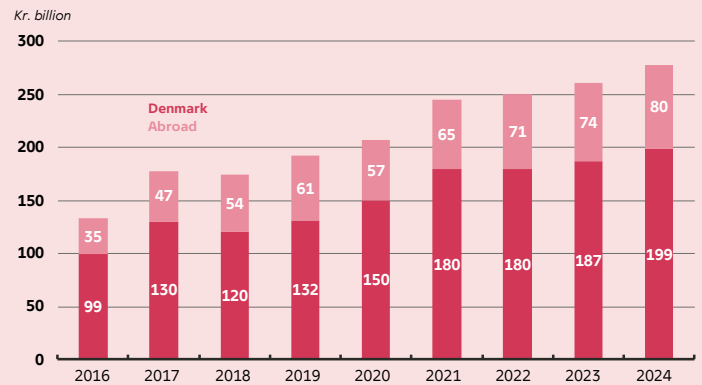


Note: The circles mark the first quarter of 2021, when much of the physical retail sector was in lockdown due to the corona pandemic.  
Source: Danmarks Nationalbank.

CHART 11

**Online payments have more than doubled since 2016**

Total online card turnover with payment cards issued in Denmark by payee's country of origin



Note: Card turnover relates to both purchases of goods and services online via web stores and in-app payments on mobile phones, such as supermarket apps or Rejsekort (the Danish travel card) on the mobile phone.  
Source: Danmarks Nationalbank.

## Increasing use of wallet payments

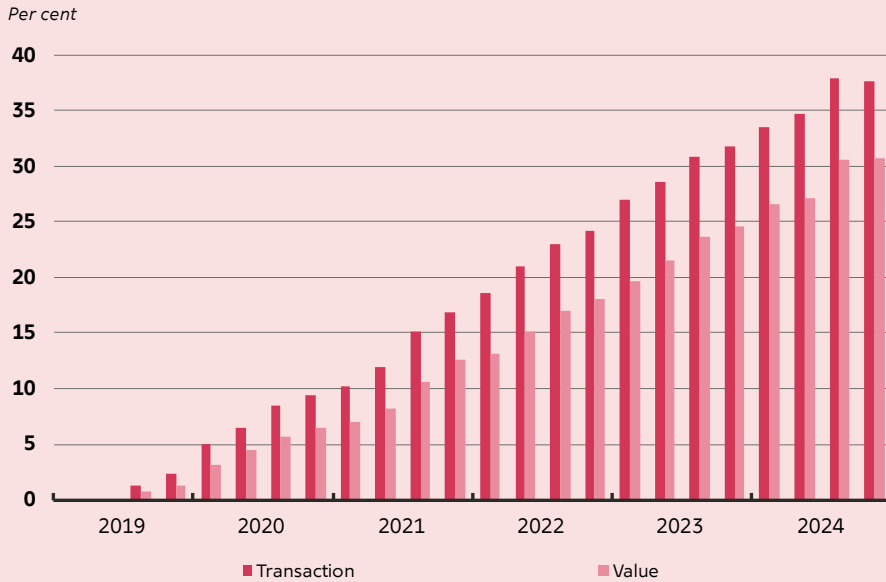
Card technology is constantly evolving with new security features and functions. This was the case, for example, with introduction of the chip in Dankort in 2004 and the launch of contactless payments in 2014, which made it possible to pay without the payment card having physical contact with the payment terminal. Recently, wallet payments, such as Apple Pay and Google Pay, have been introduced, where payment cards are stored digitally on mobile phones.

The use of mobile wallet solutions has increased steadily since they were introduced to the Danish market in late 2017. Not all banks offered wallet solutions straight away, but in 2019, all individuals in Denmark with a newer smartphone had the opportunity to use their payment cards via Apple Pay or Google Pay.

CHART 12

**By the end of 2024, mobile wallet payments accounted for almost 40 per cent of card payments in physical commerce**

Total percentage of card payments in physical commerce made using a mobile wallet solution



Note: The chart is based on quarterly data since the third quarter of 2019. By the end of 2019, most Danish banks were able to offer their customers Apple Pay and Google Pay.  
Source: Danmarks Nationalbank.

The use of mobile wallet solutions has evolved rapidly. By the end of 2024, wallet payments accounted for approximately 38 per cent of all card payments made in physical commerce, see chart 12. This meant that by 2024, one in three payments in physical commerce was made with a mobile wallet solution. This should be seen in the context of the fact that less than half of the population has chosen to store their payment cards digitally in one of the wallet solutions, see chapter 3.<sup>14</sup> However, these individuals use wallet solutions for the majority of their payments in physical commerce.

<sup>14</sup> In Danmarks Nationalbank's latest survey of Danish citizens' payment habits in spring 2023, around 40 per cent of the population stated that they had either Apple Pay or Google Pay available, see chapter 3. This percentage has probably increased since the survey was conducted.

# 03 Citizens' choice of payment solution depends on convenience

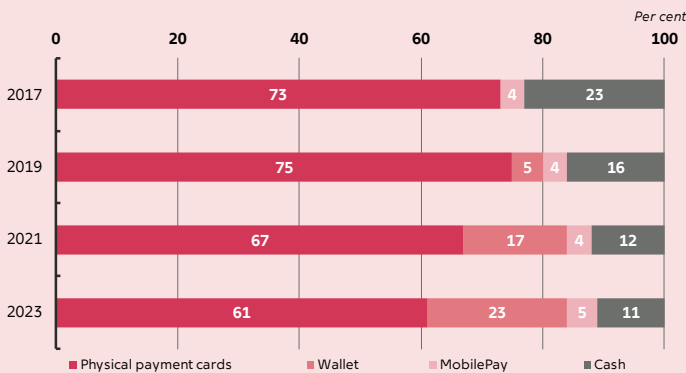
Every two years since 2017, Danmarks Nationalbank has analysed Danish citizens' payment habits and preferences across different payment scenarios, such as purchases in physical stores or between private individuals. The last survey was conducted in 2023, see box 3.

The survey shows, among other things, that physical payment cards were used most for payments in physical stores, see chart 13, while, broadly speaking, physical payment cards and mobile phones were used almost equally for online purchases, see chart 14.

CHART 13

### Card and mobile payments are used for nine out of ten payments in physical commerce

Distribution of payments in physical commerce



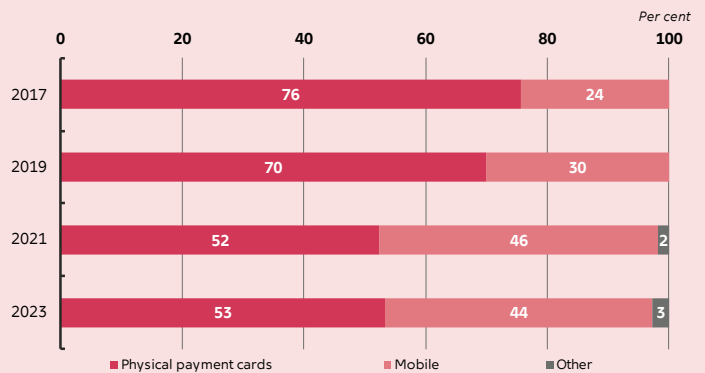
Note: Wallet payments include, e.g. Apple Pay and Google Pay. The chart is based on data from Danmarks Nationalbank's surveys of Danish citizens' payment habits. Due to statistical error and difference in data periods, the chart may differ from other charts in the analysis using other data sources.

Source: Danmarks Nationalbank.

CHART 14

### Both physical card and mobile payments are popular for online purchases

Breakdown of payments in trade-commerce



Note: Mobile payments include both MobilePay and wallet payments, such as Apple Pay and Google Pay. Wallet payments are used to a lesser extent for online purchases, which is why online mobile payments primarily comprise payments with MobilePay. 'Other' includes credit transfers and 'Buy now, pay later' solutions, such as Klarna.

Source: Danmarks Nationalbank.

However, the use of payment cards is increasingly shifting away from traditional physical payment cards. Since 2019, the use of physical payment cards has decreased from 75 per cent of payments to 61 per cent in 2023, see chart 13. Instead, consumers are using wallet solutions such as Apple Pay and Google Pay,

which integrates a payment card digitally on a mobile phone.<sup>15</sup> As a result, the total share of card payments made by Danish citizens in physical commerce has remained roughly unchanged between 2021 and 2023.

The trend towards more wallet payments has grown rapidly, especially since 2019, when most Danish banks were able to offer their customers Apple Pay and Google Pay.<sup>16</sup> This trend reflects fast changing payment behaviour among Danish citizens, with payment cards increasingly being used via wallet solutions for payments in physical commerce, see chart 13.

In contrast to the trend in the use of wallet payments, the use of MobilePay in physical commerce has remained stable since 2017 and in 2023 accounted for around 5 per cent of the total number of payments, see chart 13.

The trend from physical payment cards towards mobile payments is similarly observed when Danish consumers pay online, see chart 14. In 2017, a payment card was used for 75 per cent of all online purchases. In 2023, mobile payments and physical payment cards were used more or less equally.

Unlike in physical commerce, Danish citizens' mobile payments online are mainly made with MobilePay. When used online, MobilePay primarily functions as an initiation service where the user uses the mobile payment solution to initiate and approve the payment, while the payment itself is typically completed as a card payment.

### BOX 3

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

Danmarks Nationalbank regularly uncovers Danish citizens' payment habits and preferences through a survey. Since 2017, surveys have been conducted every two years to, among other things, map Danish citizens' use of various payment solutions, typically physical payment cards, mobile phones or cash. The data were collected by Epinion in 2023 and are based on responses from 2,737 representatively selected Danish citizens over the age of 15.<sup>1</sup>

All respondents completed a payment diary with details of the payments they made during a whole day. For each payment, the individual provided a range of information, including payment method and location, such as paying by card in a convenience store.

In addition to the payment diary, respondents also answered a series of questions about payment preferences, such as their preferred payment solutions and the benefits they associate with the solution.

The data were collected in spring 2023. The invitation to take part in the survey was sent out via both digital and physical mail to ensure representation across the population, including age, gender, education and income, as well as among citizens who are exempt from receiving digital mail from the public authorities. Respondents had the opportunity to answer the survey digitally or via telephone interviews.

<sup>1</sup> The survey is associated with a +/- 1.9 percentage point of statistical error for questions covering the entire group of respondents. The statistical error is greater when analysing age groups and sub-questions, for example.

<sup>15</sup> Since Danmarks Nationalbank's last survey of Danish citizens' payment habits and preferences in 2023, the use of wallet payments has been increasing, see chart 12 in chapter 2. In 2024, wallet payments were used for every third payment in physical commerce.

<sup>16</sup> Apple Pay and Google Pay were introduced in Denmark in October 2017 and October 2018 respectively. In April 2017, Nets launched the Dankort mobile app, which never achieved widespread use in physical commerce and was discontinued in October 2022.

## Citizens' use of payment solutions largely reflects their preferences

In Danmarks Nationalbank's latest survey, respondents were, among other things, asked about their preferred payment solution in different payment scenarios.

The survey showed that in physical stores, around 65 per cent of Danish citizens prefer to pay with a physical payment card, while mobile payments, especially via wallet, and cash are the preferred payment solutions for 23 per cent and 12 per cent of Danish citizens respectively, see chart 15.

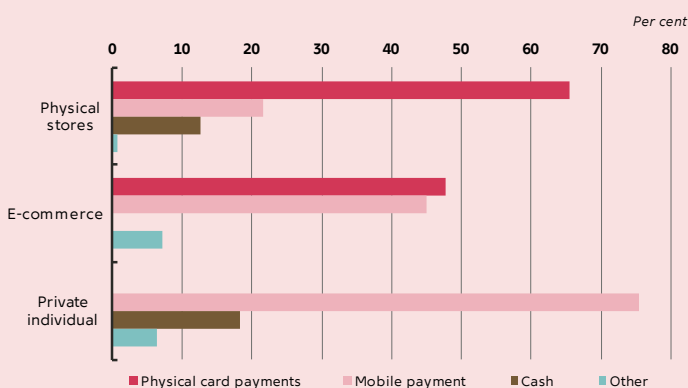
When completing the survey, respondents were asked to rate the benefits they associate with the use of payment cards and wallet payments in physical commerce. Across both physical payment cards and wallet payments, Danish citizens particularly emphasise that they are easy to use and that payments are quick to make, see chart 16.

As regards wallet payments, Danish citizens also emphasise that it is a particular advantage that they only need to bring their mobile phone to pay. Although wallet payments can generally be used in the same physical commerce locations as payment cards, more people consider the fact that payment cards are accepted everywhere to be a particular advantage over wallet payments.

In general, there are differences in how much the different mobile payment solutions are used by Danish citizens. While MobilePay was used for 5 per cent of payments in physical commerce in 2023, wallet solutions such as Apple Pay and Google Pay were used for 23 per cent, see chart 13.

CHART 15

### Citizens' preferred payment solution depends on location and payee

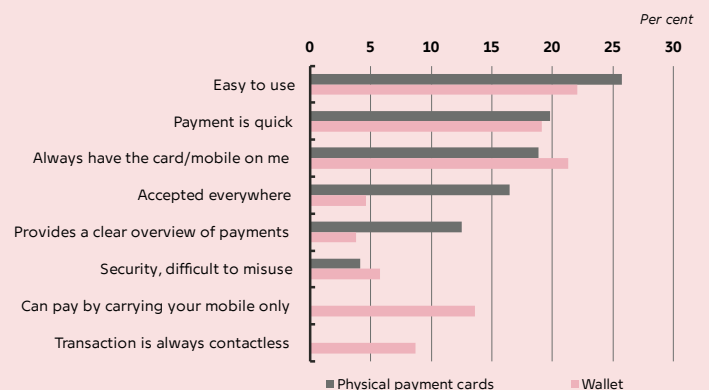


Note: Respondents were asked which payment solution they prefer to use in different payment scenarios. 'Other' includes, among other things, online and mobile banking. Data were collected in 2023.

Source: Danmarks Nationalbank.

CHART 16

### Citizens' choice of digital payment solutions largely depends on how easily and quickly payments can be made



Note: Respondents were asked to prioritise and rank a minimum of two and a maximum of four benefits that they associate with the different payment solutions. For some payment solutions, respondents were presented with specific benefits, such as 'Can pay by just bringing your mobile phone' for mobile payment solutions. Data were collected in 2023.

Source: Danmarks Nationalbank.

A key difference between the mobile payment solutions is that MobilePay uses QR codes to initiate payments, which differs from the more direct integration with traditional payment terminals offered by Apple Pay and Google Pay, see chapter 7.<sup>17</sup> With these solutions, the payment experience is very similar to a traditional card payment. Payment can e.g. be initiated by double tapping the phone, identification with facial recognition and holding the phone up to the payment terminal – all without having to open a separate app.

### Danish citizens' online payments

When making purchases online, Danish citizens' payment preferences are more evenly distributed compared to purchases in physical commerce. Around half of the Danish citizens prefer to pay with a physical payment card, while the other half prefer mobile payments, including MobilePay, see chart 15. Only a small group, mainly senior citizens, prefer other solutions, such as mobile and online banking. Danish citizens' payment preferences and actual use of payment solutions for online purchases are therefore very similar, see chart 14.

The relatively high preference for mobile payments online may be due in part to the ease of use that mobile payments provide. By using mobile phones for online purchases, individuals can quickly and easily make payments without having to take out a physical payment card, without manually entering card details and without further authorisation of the payment, for example via MitID.<sup>18</sup> This is partly because mobile solutions can fulfil the requirements of European regulation for two-factor authentication by combining smartphone access (something the user has) with either a PIN or biometric authentication such as facial recognition (something the user knows or is).<sup>19</sup> Two-factor authentication has been a requirement for online payments since 1 January 2021 and may therefore be a contributing factor to around half of Danes today using their mobile phones for online purchases, see chart 14.

### Increased use of mobile payments is demand-driven

Overall, the trend suggests that the use of payment solutions largely reflects Danes' preferences, which across different payment scenarios are driven by convenience. One reason for this is that payees, including stores, are not allowed to surcharge consumers for using certain payment solutions, see chapter 4. The increased use of digital payment solutions, especially mobile payments, therefore seems to be demand-driven, as individuals are generally free to choose whether they want to pay in cash or digitally, including which digital solution they prefer.

## Digital payment solutions are widely used in Denmark

The use of both card and mobile payments is widespread among citizens across Denmark, see chart 17. Across the country, digital payment solutions were used for between 84 per cent and 93 per cent of citizens' payments in physical commerce in 2023.

The widespread use of digital payment solutions is also observed across age groups, see chart 18. The 60-69 age group had the lowest percentage of digital payments at 84 per cent – just 10 percentage points lower than the 15-29 age group, which had the highest percentage. The broad anchoring across age has

<sup>17</sup> Until mid-2021, MobilePay also used Bluetooth technology to initiate payments in physical commerce.

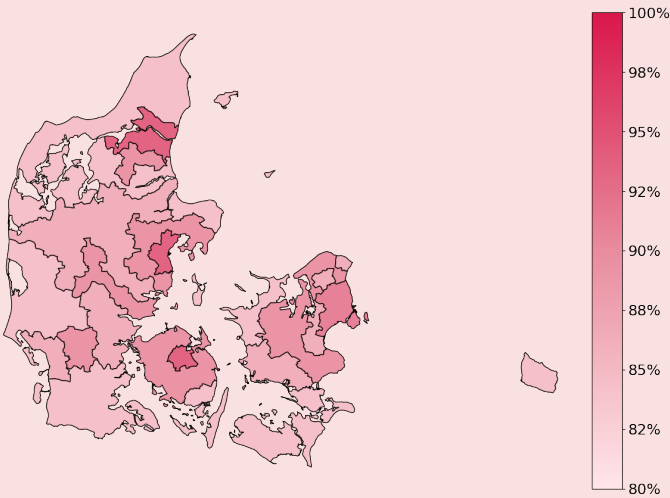
<sup>18</sup> MitID is the Danish identification application, providing access to a wide range of digital services, including online payments and banking, government services, and other digital platforms.

<sup>19</sup> See Danmarks Nationalbank, Digital payment fraud in Denmark, *Danmarks Nationalbank Analysis*, No. 7, April 2024 ([link](#)).

emerged particularly in recent years; in 2017, there was a clear correlation between greater use of digital payment solutions and younger age groups. The increased use of digital payment solutions in Denmark is driven in particular by people over the age of 40, as the youngest people were already using digital payment solutions to a very high degree in 2017.

CHART 17

**Digital payment solutions are widespread throughout Denmark**



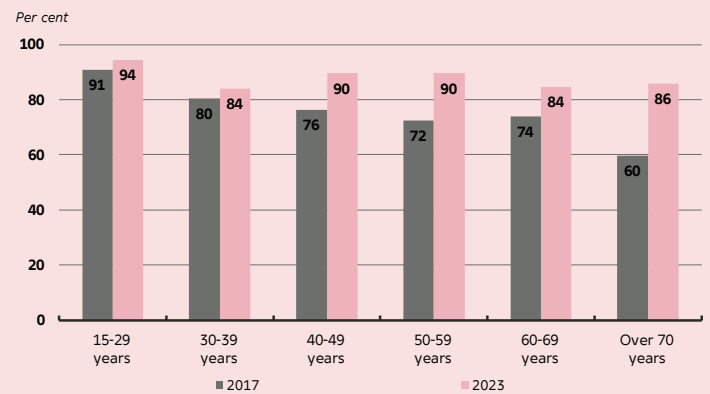
Note: The map shows the percentage of total payments in physical commerce made using digital payment solutions by municipality in which the respondents live. The municipality grouping is based on Statistics Denmark's definition. Data were collected in 2023.

Source: Danmarks Nationalbank and Statistics Denmark.

CHART 18

**Consumers over the age of 40 have driven the trend towards more digital payments**

Total percentage of age group payments made digitally



Note: The chart shows the percentage of total payments in physical commerce made using digital payment solutions by respondents' age. Data were collected in 2023.

Source: Danmarks Nationalbank.

**The youngest citizens are quicker to adopt new payment methods**

The trend towards more digital payments across age groups shows that Danes are generally quick to change their payment habits. This is also seen in the use of mobile phones for payments in physical commerce. Over 40 per cent of payments in physical stores among 15-29 year olds were made using a mobile phone in 2023, while people over the age of 70 used mobile payment solutions for around 11 per cent of their purchases. In comparison, in 2019, the percentage was significantly lower at around 15 per cent and 2 per cent for the two age groups respectively, see chart 19.

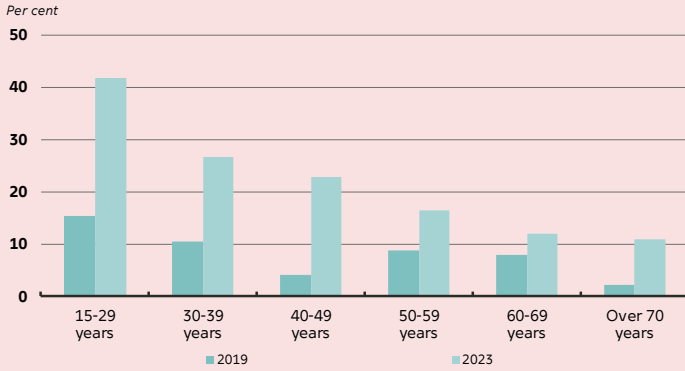
This trend reflects a high degree of technology readiness in the Danish population, where new payment solutions are quickly adopted and become part of everyday life. The trends in Danes' payment habits show further variation across age groups: The younger generations use mobile phones for payments significantly more and are quicker to adopt new technologies and payment methods. Older generations are following suit, but typically at a slower pace.

The age variation also seems to explain the geographical differences in mobile payment usage observed across Denmark. Mobile payments are used for over 20 per cent of payments in physical commerce in all municipalities, but are particularly prevalent in and around university cities, where a larger percentage of the population is under the age of 30, see chart 20.

CHART 19

**The youngest people in particular use mobile payments in physical commerce**

Total share of payments in physical commerce made using a mobile phone

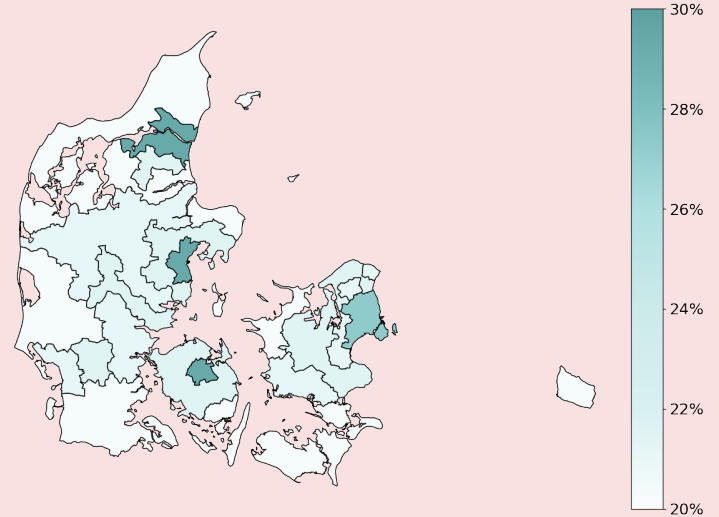


Note: Mobile payment solutions include MobilePay, Apple Pay, Google Pay and Samsung Pay. Data were collected in 2023. Since the data collection in 2023, the use of wallet payments has increased, see Figure 12 in Chapter 2. In 2024, wallet payments were used for every third transaction in physical trade.

Source: Danmarks Nationalbank.

CHART 20

**Mobile payments are used throughout Denmark, but especially in university cities**



Note: The map shows the percentage of total payments in physical commerce made using mobile payment solutions by municipality in which the respondents live. The municipality grouping is based on Statistics Denmark's definition. Mobile payment solutions include MobilePay, Apple Pay, Google Pay and Samsung Pay. Data were collected in 2023.

Source: Danmarks Nationalbank and Statistics Denmark.

**Four out of ten Danish citizens have wallet payment solutions available**

The adoption of wallet payments in physical commerce has been rapid and these are being used by an increasing percentage of the population. According to Danmarks Nationalbank's survey from spring 2023, around 30 per cent of the Danish population had the option to pay with Apple Pay, while around 10 per cent said they could use Google Pay, see chart 21. In comparison, the percentages in 2019 were approximately 9 per cent and 4 per cent for Apple Pay and Google Pay respectively.<sup>20</sup>

Danmarks Nationalbank's survey further indicates that once individuals have adopted a wallet solution, it quickly becomes their preferred and primary payment solution. This is reflected in the fact that around 22 per cent of people prefer to use Apple Pay and Google Pay for payments in physical commerce, see chart 15, and that one in four of all payments in 2023 in physical commerce is a wallet payment. This indicates that the group of people who prefer wallet solutions use them for the majority of their payments in physical commerce.

**Other payment solutions cover the needs of people without wallet solutions**

In Danmarks Nationalbank's survey, Danes who do not have wallet solutions available were asked why they have not chosen to integrate one of their payment cards digitally on their mobile phone. First and foremost, the responses showed that these people felt that other payment solutions already met their needs, see chart 22.

<sup>20</sup> iPhones are by far the most popular smartphone in Denmark, which may explain why Apple Pay is more widely used than Google Pay. See Forbrugerrådet TÆNK, Vi er storforbrugere af mobiltelefoner (We are big consumers of mobile phones, in Danish only), February 2023 ([link](#)).

In addition, the survey showed that around one in four people who do not have a wallet solution available do not want to use their mobile phone to make payments. Only a small percentage of the population indicated concerns about the risk of payment data theft or sharing payment data with anyone other than the bank.

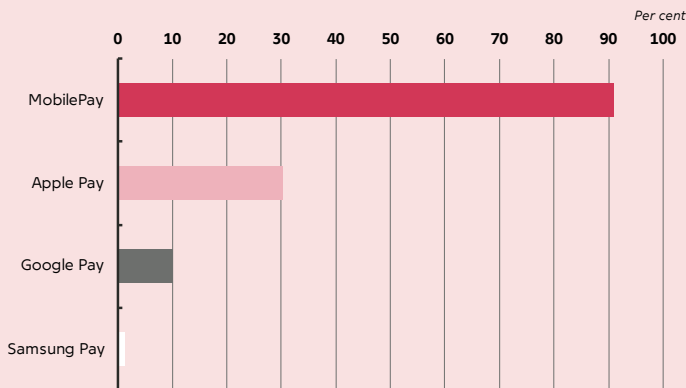
Finally, around 7 per cent of respondents who did not have a wallet solution available said they did not have a smartphone. This meant they did not have the option to use wallets via a mobile phone.

Danmarks Nationalbank’s survey indicates that the main reason why around three out of five Danes in 2023 did not have wallet solutions is because most were already satisfied with other payment solutions, including physical payment cards. This can be explained by the fact that wallet solutions are very similar to payment cards, which are familiar and perceived as easy and secure.

In addition to general satisfaction with other solutions, there may also be a barrier to adopting wallet solutions. Integrating a payment card digitally in a wallet solution requires several manual steps, which can be challenging, especially if you are not tech-savvy. This may be enough to prevent some individuals from using wallet solutions. This is especially true for those who are already happy with existing solutions.

CHART 21

**Three out of five people did not have a mobile wallet solution available in 2023**

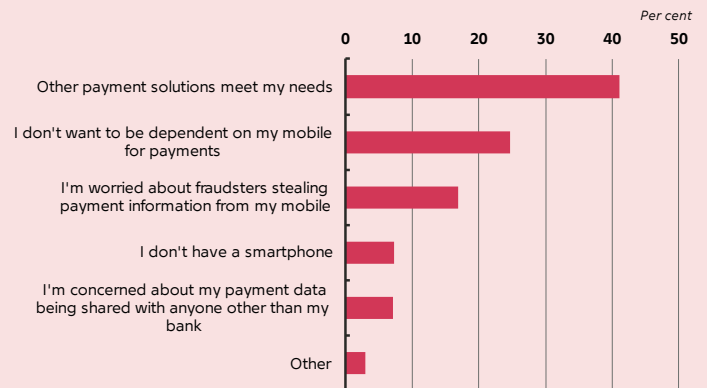


Note: The chart shows which mobile payment solutions Danish citizens have the option to use according to Danmarks Nationalbank’s survey from spring 2023. Respondents were asked to indicate which solutions they have available. Data were collected in 2023.

Source: Danmarks Nationalbank.

CHART 22

**The main reason for consumers not using wallet solutions is that other solutions fulfil their needs**



Note: Respondents who said they did not have Apple Pay, Google Pay or Samsung Pay available were asked to indicate their main reasons for not using mobile wallet solutions.

Source: Danmarks Nationalbank. Data were collected in 2023.

## Three out of four payments between private individuals are made using mobile phones

In Denmark, since the launch of MobilePay in 2013, it has been possible for people to use their mobile phones to transfer money to other private individuals.

The solution has become widespread and in 2023, 91 per cent of Danes had MobilePay available on their phone, see chart 21.<sup>21</sup>

Since 2019, the use of mobile payments has increased from around 60 per cent of person-to-person payments to around 75 per cent in 2023, see chart 23. The development in payment behaviour between private individuals is very much in line with Danish citizens' preferences, as around 75 per cent prefer to use MobilePay when transferring money to other private individuals, see chart 15.

MobilePay has replaced cash payments in particular, which, along with credit transfers, are the solutions that private individuals use for payments between each other. Mobile payments have many of the same characteristics as cash. For example, MobilePay uses instant payments, which means that the amount is transferred instantly and is available to the recipient within seconds. Similar to a cash payment, an instant payment is final, which means that the recipient has certainty that the payment has been completed and has the money available immediately.<sup>22</sup>

The preference for using MobilePay among private individuals may reflect, among other things, that the mobile solution makes it easy and quick to make transfers compared with other payment solutions for payments between private individuals. One of the reasons for this is that MobilePay links users' account information with their mobile phone number. Payments can therefore be made simply by entering the recipient's mobile number or name, as the solution automatically stores the phone's contact list.<sup>23</sup>

### **Mobile phones are used especially for sharing bills and repaying loans and expenses**

When Danish citizens use their mobile phones to transfer money to other private individuals, it is typically to split a bill or repay an expense. According to Danmarks Nationalbank's 2023 survey, bill sharing and repayment of loans and expenses accounted for approximately 59 per cent of the total value transferred using a mobile phone between private individuals, see chart 24.

In addition, mobile phones are also used when private individuals trade with each other, for example at flea markets or digital marketplaces such as DBA or Facebook Marketplace.<sup>24</sup>

<sup>21</sup> Initially, all MobilePay payments involved a card payment, but since the beginning of 2018, MobilePay has primarily used instant payments to settle payments between private individuals and payments in physical commerce, see chapter 2 or Danmarks Nationalbank, MobilePay-teknik bag kraftigt fald i dansk e-handel (MobilePay technology behind sharp decline in Danish e-commerce, in Danish only), *Danmarks Nationalbank Statistical News*, June 2018 ([link](#)).

<sup>22</sup> See Danmarks Nationalbank, The role of cash in a society with low usage of cash, *Danmarks Nationalbank Analysis*, No. 21, November 2023 ([link](#)).

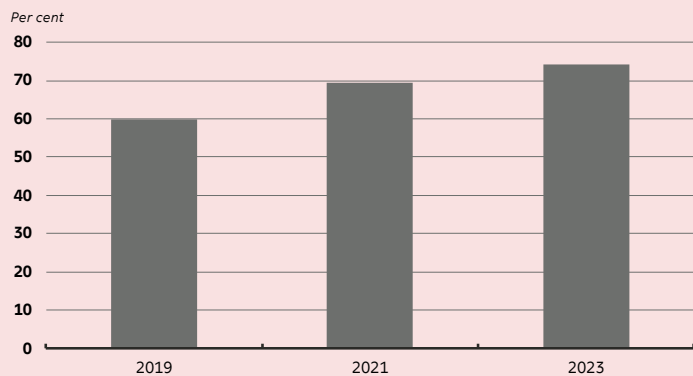
<sup>23</sup> Unlike online or mobile banking transfers, the recipient's full legal name is displayed before a payment is completed with MobilePay. It was implemented in early 2024 to minimise the risk of money ending up in the wrong hands.

<sup>24</sup> DBA (Den Blå Avis) is a popular Danish online marketplace where individuals can buy and sell various items. It is one of Denmark's largest platforms operating both on the web and through a mobile app.

CHART 23

**Three out of four payments between private individuals are made using a mobile phone**

Percentage of payments between private individuals made using a mobile phone

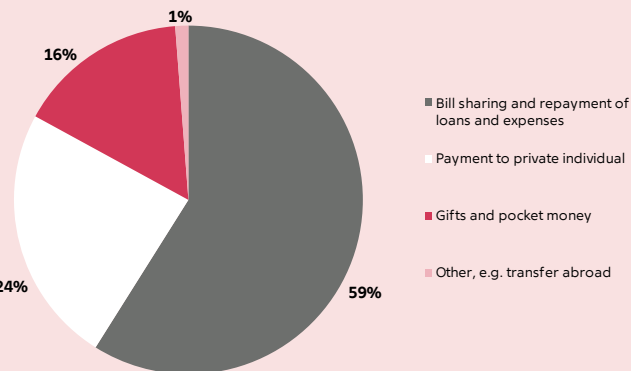


Note: Payments between private individuals include payments for goods or services between private individuals as well as pocket money, gifts and expenses for other private individuals, such as bill sharing.

Source: Danmarks Nationalbank.

CHART 24

**Mobile phones are used in particular for bill sharing and repayment of loans and expenses between private individuals**



Note: The chart shows payments made with mobile payment solutions between private individuals, including MobilePay and other mobile solutions such as PayPal. Payments to private individuals are made for purchases at flea markets, roadside stalls or digital marketplaces such as DBA or Facebook Marketplace. Data were collected in 2023.

Source: Danmarks Nationalbank.

# 04

## Card payments involve multiple parties and fees

The payment market can basically be divided into two sides: On one side is the payer who wants to pay for goods or services, while the payee is appears on the other. Although a digital payment may seem simple, it requires a well-functioning infrastructure and close collaboration between multiple parties in a carefully coordinated process.

Transfers are made possible through payment systems based on a combination of comprehensive agreements, regulations, technical standards and infrastructure.<sup>25</sup> The most widely used retail payment systems in Denmark are payment card systems, in particular Dankort, Visa and Mastercard. Although the card brands represent different networks and systems, card payments are largely processed by the same parties and use the same underlying infrastructure, see below.

### Key parties in a payment card system

In Denmark, the most common payment card systems are based on 'four-party model'.<sup>26</sup> Four independent parties are involved in these models: 1) *cardholder*, 2) *card issuer*, 3) *card acquirer* and 4) *payee*, see chart 25.

Just like the general payment market, four-party models can be divided into two sides: The *payment side*, with 1) the cardholder and 2) the card issuer, and the *payee side*, with 3) the card acquirer and 4) the payee.

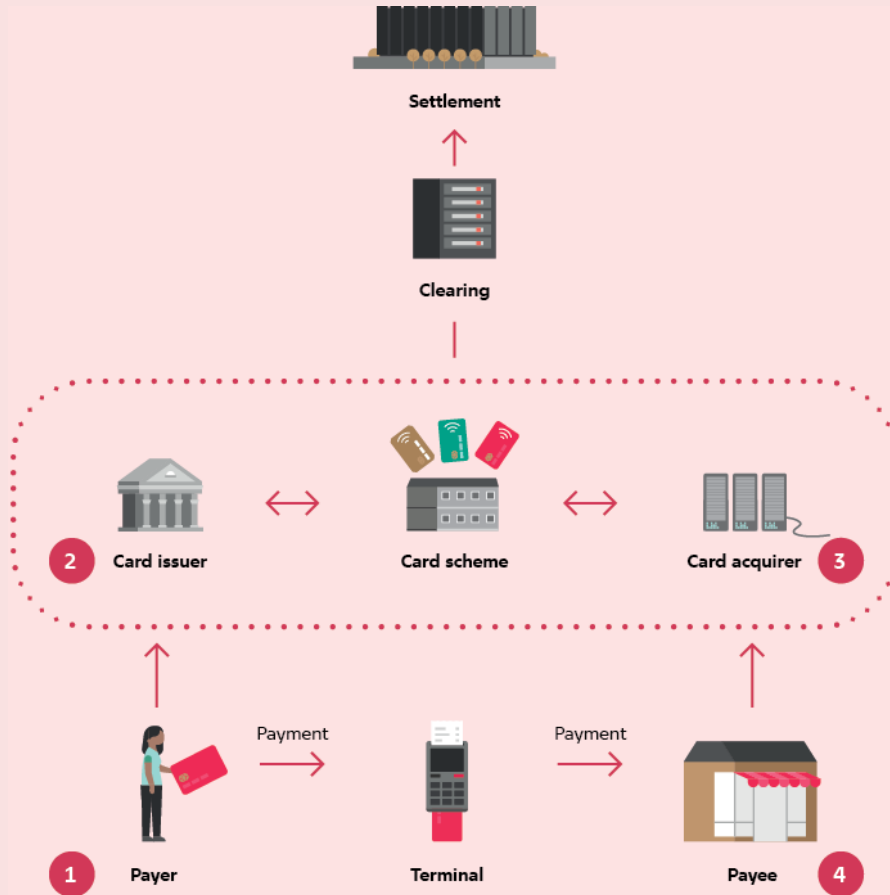
The *card scheme* acts as the link between the two sides. In addition, a number of other parties provide the necessary technology and infrastructure to enable the transfer of funds from payer to payee via payment cards, such as terminal providers in physical stores and payment gateways in e-commerce, clearing and settlement systems, see box 4.

<sup>25</sup> A payment system is defined as a system for transferring funds with formal and standardised arrangements and common rules for the processing, clearing or settlement of payment transactions, see the Danish Payments Act, Section 7(13) ([link](#)).

<sup>26</sup> Some payment card schemes are organised as three-party model where the card company acts as both card issuer and card acquirer. In Denmark, the Consumers' Association (*Forbrugsforeningen*) is an example of a three-party scheme.

CHART 25

The card scheme plays a key role in connecting all the parties involved in a card payment



Note.: In the case of Dankort payments, Nets performs several roles centred around the card scheme. These are the roles of card acquirer, owner of Dankort and provider of a number of related services, such as card issuing services for banks. Nets is also a terminal supplier for merchants. In the case of international card payments, such as Visa and Mastercard, Visa and Mastercard only fulfil the role of card scheme.

Source: Danmarks Nationalbank.

#### BOX 4

### Key parties and systems in a payment card system

#### Card holder

The cardholder is the person to whom a payment card is issued and who can use the card to pay.<sup>1</sup>

#### Card issuer

In Denmark, the card issuer is typically the cardholder's bank, which enters into an agreement with the card scheme to obtain a licence to issue the card scheme's payment cards to its customers. Card issuers typically enter into agreements with several card schemes, such as Dankort, Visa or Mastercard, so they can issue several types and brands of payment cards to their customers.

#### Card scheme

In Denmark, the most common card schemes are Dankort, Mastercard and Visa. The card scheme owns the rights to the associated card brand. The company sets the framework, rules and standards for how the cards are issued and used. Card issuers and card acquirers must comply with these guidelines and pay a card scheme fee to participate in the card system.

#### Card acquirer

The card acquirer, like the card issuer, enters into an agreement with the card scheme and thereby obtains a licence to process payments with the card scheme's payment card on behalf of a payee. The card acquirer ensures that card payments are authorised at the payment terminal, i.e. applies for authorisation and approval of payments from the cardholder's card-issuing bank and the card scheme, and that the money is ultimately transferred from the cardholder's account to the payee.

In Denmark, Nets is the largest card acquirer. Nets owns Dankort and is also the only card acquirer that offers payment acquiring of Dankort, while there are several card acquirers that offer acquiring of international payment cards, including Mastercard and Visa. These include e.g. Swedbank Pay and Wordline.

#### Payee

The payee is typically a retailer that enters into an acquiring agreement with one or more card acquirers in order to accept payments with payment cards. The retailer's choice of card acquirer and acquiring agreement depends, among other things, on which payment cards the retailer wants to accept and whether the retailer wants to accept card payments in physical and serviced commerce, self-service environments and/or online.

#### Providers of payment terminals and payment gateways

Payment terminal providers provide technology and services that enable physical stores to accept card payments in physical commerce. This includes the provision of terminals, technical support, etc. Payment gateways perform similar tasks for merchants in e-commerce, i.e. connect online stores with card acquirers. In Denmark, card terminal suppliers and card acquirers are often the same party. This is true in the case of Nets and Verifone, for example.

#### Clearing systems

Once a retailer's card acquirer has approved a card payment, the transaction is forwarded for clearing. All card payments made in Denmark are collected daily, after which the banks' net positions are calculated, i.e. how much each bank must pay or receive in total to offset the payments their customers have made during the day.<sup>2</sup>

In Denmark, Finance Denmark, on behalf of the Danish banks, owns the clearing systems, while Mastercard operates them.<sup>3</sup>

*Continues ...*

... continued

### Settlement systems

Once the banks' net positions have been calculated and it has been determined what the individual banks owe each other, the net positions are sent for settlement in Danmarks Nationalbank's system for settlement of payments between banks, Kronos 2. From Easter 2025, the settlement of Danish kroner will be carried out on the pan-European platform for payments and securities trading, TARGET Services, see also box 12.<sup>4</sup>

Once the payments between banks have been completed at Danmarks Nationalbank, the banks' card payments are recorded and posted in their customers' bank accounts. The card payments are then final.

<sup>1</sup> Some types of business cards are not linked to a specific person, but can be used by all company employees.

<sup>2</sup> Net positions represent the difference between the total amount paid and received by a bank's customers, i.e. what different banks owe each other.

<sup>3</sup> Mastercard also owns and operates PBS clearing, which acts as preliminary sub-clearing for e.g. Dankort-payments in Denmark. This clearing takes place before the Dankort-payments go through final clearing in Sumclearing, which is owned by Finance Denmark.

<sup>4</sup> TARGET Services is owned by the Eurosystem, which consists of the European Central Bank and the national central banks within the euro area. Learn more about the transition from Kronos2 to TARGET Services ([link](#)).

### Card payments in Denmark largely rely on the same infrastructure

Danish citizens largely use physical payment cards or payment solutions based on card payments, such as Apple Pay and Google Pay, to make payments, see chapter 3. This means that Danes rely heavily on a secure and stable card payment infrastructure for their payments of goods and services.

Denmark has a secure payments infrastructure<sup>27</sup>, where the processing of card payments are largely handled by the same parties and systems, e.g. a few card acquirers and the same underlying systems, see box 4. This means that disruptions to the card payment infrastructure in Denmark could potentially affect transactions with all the different payment card brands, including Dankort, Visa and Mastercard, and card types in Denmark, i.e. debit and credit cards.

However, if only one card company is affected operational disruptions, it will still be possible to use payment cards from the other two brands. The presence of three widely used card brands from different card schemes therefore contribute to a greater resilience of card payments in Denmark.

In Denmark, Nets plays a key role in the processing of card payments, as it is the largest card acquirer with a market share between 75-80 per cent, see chapter 5. Simultaneously, virtually all card payments in Denmark are processed via Nets' systems, regardless of which card acquirer acquires the card payment. Nets' systems are therefore important for the operational resilience of card payments in Denmark.

The presence of several payment solutions that are widely used in Denmark and that rely on different infrastructure, such as credit transfers in the form of instant payments, could contribute to increasing the resilience of consumers' payments, see chapter 7.

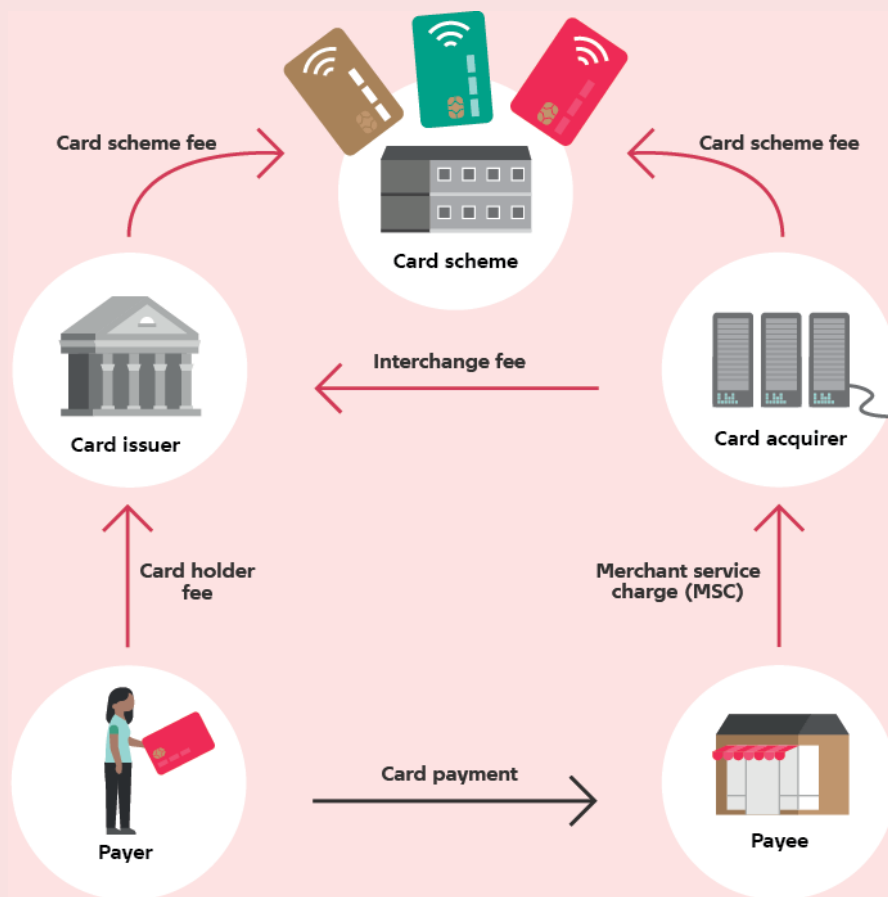
<sup>27</sup> See Danmarks Nationalbank, Oversight of the financial infrastructure 2023, *Danmarks Nationalbank Report*, No. 4, May 2024 ([link](#)).

## Fees and incentives associated with using card payments in Denmark

The use of card payments involves a number of fees that are not visible to consumers, see chart 26. This is partly because merchants are not allowed to charge private individuals a separate fee for the use of payment cards in Denmark or the EEA<sup>28</sup>, if the payment card is based on a four-party model issued by a Danish bank, such as Dankort, Visa or Mastercard. The prohibition was introduced in 2015 and applies in both physical stores and in e-commerce, see box 6.

CHART 26

Card payments involve a number of fees between parties



Note: The red arrows show fees that are paid between the parties involved in a card payment. If card issuers and acquirers have outsourced the processing of card payments to other players, processing fees will also be included.

Source: Danmarks Nationalbank.

<sup>28</sup> The European Economic Area, EEA, covers the EU countries, Norway, Iceland and Liechtenstein.

This means that an annual cardholder fee to the card-issuing bank is typically the only fee that a consumer may be charged in connection with card payments. However, most Danish banks typically offer at least one free payment card to customers who use the bank as their primary financial institution. Cardholder fees are therefore mainly related to credit cards with larger credit facilities and additional services, such as insurance and loyalty schemes.

Unlike consumers, merchants pay a *merchant service charge* to their card acquirer in order to be able to accept card payments. The fee is typically percentage-based and varies across card brand, card type and payment environment, such as online or physical commerce. In addition, the merchant service charge typically depends on the payee's business volume and bargaining power with the card acquirer.

In addition to the merchant service charge, merchants often also pay a *terminal fee* for renting payment terminals or a *payment gateway fee* for facilitating payments in e-commerce to a card acquirer.

### **Fee income for card acquirers and issuers has to cover various costs**

Card acquirers receive an income from merchants in the form of a merchant service charge, which, among other things, is used to cover a number of expenses to other parties in the payment card system. This means, among other things, that international card schemes, such as Visa and Mastercard, typically charge a *card scheme fee* in order for card acquirers to acquire their card brand and thus participate in their payment card network.<sup>29</sup>

In addition, the card companies set an *interchange fee* that the card acquirer must pay to the card-issuing banks, partly to cover the costs that the banks incur when their customers make card payments, such as issuing and operating costs for physical payment cards and systems. Banks also pay a card scheme fee to the card companies for issuing their payment cards to their customers. To put it simply, the merchant service charge for card payments generally cover three underlying sub-components: the interchange fee to the card issuer, the card scheme fee to the card company and the card acquirer's gross margin, which covers both the card acquirer's internal costs and profit.

Furthermore, card issuers also pay a transaction fee to wallet providers, such as Apple Pay and Google Pay, when their customers their payment cards via wallet solutions, see below.

### **Card companies charge several different fees**

In addition to card scheme fees from card acquirers and card issuers, in many cases card schemes also charge card acquirers and card issuers other fees. These include a so-called *processing fee* that card companies charge if the card company is involved in the processing of the payment. Moreover, card companies often offer additional services to both card acquirers and card issuers that are related to the payment. These include real-time anti-fraud mechanisms that monitor suspicious card transactions.

### **The prohibition on passing on card fees removes the incentive for consumers to choose the cheapest payment solution**

The prohibition on passing card fees on to consumers was, among other things, introduced to ensure that merchants had a clear incentive to choose the most cost-effective card acquiring agreement. Consequently, consumers' choice of payment solution depend primarily on how convenient the payment solution is

<sup>29</sup> There is no card scheme fee to Dankort for acquiring Dankort payments, as Nets is both the sole acquirer and owner of Dankort.

experienced, see chapter 3, and on the extra services and benefits that come with the card, such as insurance, access to credit or loyalty schemes, as they do not directly bear the cost of their choice.

The legislation allows merchants to set their payment terminals to prioritise a specific card brand when the consumer pays with a co-badged payment card, including Visa/Dankort or Mastercard Dankort. This means that merchants typically choose to prioritise the card brand with the lowest merchant service charge. However, consumers always have the right to override the store's prioritisation and choose a different card brand on the terminal when paying with a co-badged payment card, see box 5.

#### BOX 5

##### **Payees can prioritise card brands when consumers use co-badged payment cards**

Payees, such as retailers, have the option to prioritise a specific card brand when the consumer pays with a co-badged payment card, such as Visa/Dankort.<sup>1</sup> This means that merchants can choose a specific card brand to be used by default if the consumer does not actively choose another. When paying with co-badged payment cards in Denmark, many stores prioritise Dankort, as it is often the cheapest payment card for merchants to accept.

However, consumers have a legal right to choose which card brand they want to use when paying with a co-badged payment card, as long as the payee accepts both brands. This right is guaranteed under the EU Interchange Fee Regulation, which was introduced to promote transparency and freedom of choice in payments.<sup>2</sup> In practice, consumers can change the store's prioritisation on the payment terminal, typically by pressing the yellow button either before or during payment.

<sup>1</sup> See the Danish Competition and Consumer Authority's guidance on free choice of payment brand in physical commerce ([link](#)).

<sup>2</sup> See Regulation (EU) 2015/751 of the European Parliament and of the Council of 29 April 2015 on interchange fees for card-based payment transactions ([link](#)).

The prohibition on passing card payment fees on to consumers means that card schemes compete based on parameters other than price, when it comes to the consumers side of the market. This is done by offering additional functionalities, such as spending control, and linking consumer services like loyalty schemes, discounts and insurance to payment cards. The regulation thus contributes to payment cards evolving from pure payment solutions to include more services.

This trend makes payment cards less cost-effective, as the cost of the additional services is typically financed through higher merchant service charges for merchants, while interchange fees for card-issuing banks remain unchanged to ensure their incentive to issue specific payment cards.

##### **The interchange fee has an impact on banks' card issue**

Banks receive an interchange fee from the card acquirer when their customers pay with one of their payment cards. Part of the fee cover the banks' costs associated with issuing cards and the development and operation of systems for handling the customers payments. In addition, the fee will also cover banks' costs related to modernisation and investments in new technology, such as integrating payment cards into Apple Pay and Google Pay.

Seen in isolation, a higher interchange fee will make it more attractive for banks to promote a specific payment card. As a result, card companies in Europe have tended to gradually increase their interchange fees in order to incentivise banks to issue their payment cards rather than those of competing card companies. To

counter the rising interchange fees, which are ultimately paid by merchants and hence consumers, a joint European price cap on interchange fees of 0.20 per cent and 0.30 per cent of the transaction value for debit and credit cards respectively was introduced in 2015, see box 6.

In Denmark, the international card companies, including Visa and Mastercard, typically stipulate that card acquirers must pay the maximum permissible interchange fee within the framework of the joint European regulation to the card issuers.

In the case of Dankort payments, Nets, in its capacity as card acquirer, pays the interchange fee to the card-issuing banks. The average interchange fee for Dankort is 0.125 per cent for payments in physical commerce.<sup>30</sup> The lower interchange fee for Dankort payments reflects, among other things, that Dankort is subject to Danish price regulation, see box 6 and chapter 5. This regulation means that the revenue cap, including the fixed merchant service charge for merchants, is based solely on the costs of operating the Dankort system and not on transfers between the participants in the card payment system, such as economic incentives like the interchange fee.

Nets is currently allowed to charge merchants an average acquiring fee for Dankort payments in physical and serviced retail of 0.20 per cent, see chapter 5. Therefore, a higher interchange fee for Dankort payments in physical and serviced retail, for example at the same level of international debit cards, cannot be covered by Nets' earnings from the acquiring fee for Dankort in the price-regulated payment environments. A higher interchange fee for Dankort would therefore require Nets to accept a loss for Dankort in physical and serviced retail.

Price regulation therefore means that Nets does not have the same opportunity to make Dankort as economically attractive for banks as international debit cards. At the same time, the lower interchange fee for Dankort may mean that banks have less incentive to develop Dankort.

## BOX 6

### Regulation of fees in the Danish payment market

#### Prohibition on charging fees for card payments (surcharge)

Payees are generally not allowed to charge a fee when payment is made with a payment card based on a four-party model. The prohibition is in line with European regulation and applies regardless of whether purchases are made online or in a physical store and regardless of whether payment is made with a Dankort, international debit card or credit card.<sup>1</sup>

The prohibition on charging fees does not apply if either the card acquirer or the card issuing bank is located outside the EEA. Payment cards issued to businesses are also exempt from the prohibition.

If payment is made using a payment solution that does *not* use card payments, such as credit transfers, the payee is currently allowed to charge a fee. However, the fee may not exceed the payee's costs for completing the payment transaction.<sup>2</sup>

#### Regulation of fees related to payments

When setting fees related to a payment transaction, such as merchant service charge (paid by the payee) or currency exchange fees (paid by the payer), unreasonable prices and margins must not be applied. Unreasonable prices and margins are prices and margins that are higher than what would be the case during effective competition.<sup>3</sup>

*Continues ...*

<sup>30</sup> The interchange fee for Dankort payments can be 0.11-0.20 per cent depending on the payment type and card issuer, see Dankort, *Interchange fees* ([link](#)). According to Nets, the average interchange fee for Dankort is 0.125 per cent for payments in physical commerce.

... continued

### Interchange fees

An interchange fee is the fee paid by a card acquirer to the card issuer, typically a bank.<sup>4</sup> European legislation states that payment service providers, such as banks and card acquirers, may not offer or charge an interchange fee per debit card transaction that is more than 0.2 per cent of the transaction value. For domestic debit card transactions EU Member States can also:

- Set a percentage cap on the interchange fee per transaction that is lower than 0.2 per cent and impose a fixed maximum fee amount as a limit for the total fee payment, or
- Allow payment service providers to apply an interchange fee per transaction of 37.5 øre (5 euro cents). This interchange fee per transaction can also be combined with a maximum percentage not exceeding 0.2 per cent, provided that the sum of the interchange fees in the payment card scheme does not in any case exceed 0.2 per cent of the total annual transaction value of domestic debit card transactions within each payment card scheme.

Payment service providers may not offer or charge an interchange fee per transaction that exceeds 0.3 per cent of the transaction value for credit card transactions. For domestic credit card transactions, Member States may set a lower limit per transaction.

### Dankort is covered by Danish price regulation

In addition to the joint European rules that regulate the payment market in Denmark, the Minister for Industry, Business and Financial Affairs may stipulate that providers of certain types of payment instruments may only require payees to pay an annual subscription to cover the payment provider's costs for operating the payment system.<sup>5</sup> Such rules apply in Denmark for physical commerce and national payment card systems where the usage comprises a significant proportion of the total number of transactions in Denmark.<sup>6</sup> In practice, this means that the use of Dankort in physical and serviced retail trade is the only payment solution covered by Danish price regulation.

According to the regulation, the Danish Competition and Consumer Authority must conduct a cost analysis of the operation of the Dankort system every two years, which sets a revenue cap on what card acquirers, currently only Nets, may charge for acquiring Dankort payments in physical and serviced retail trade. In the most recent cost analysis from 2023, the total maximum charge for 2024 and 2025 respectively was set at kr. 315.2 million.<sup>7</sup>

<sup>1</sup> See Regulation (EU) 2015/751 of the European Parliament and of the Council of 29 April 2015 on interchange fees for card-based payment transactions ([link](#)).

<sup>2</sup> See the Danish Competition and Consumer Authority, *Guidance on the collection of fees by retail businesses, October 2022* ([link](#)) and the Danish Payments Act, Section 121 ([link](#)).

<sup>3</sup> See Section 122 of the Danish Payments Act ([link](#)).

<sup>4</sup> Interchange fees are uniformly regulated in the EEA, see Regulation (EU) 2015/751 of the European Parliament and of the Council of 29 April 2015 on interchange fees for card-based payment transactions ([link](#)).

<sup>5</sup> See Danish Payments Acts, Section 123(3) ([link](#)).

<sup>6</sup> See Executive Order on pricing models for certain types of payment instruments pursuant to Section 123(4) and (5) of the Danish Payments Acts ([link](#)).

<sup>7</sup> See Danish Competition and Consumer Authority, *Omkostningsundersøgelse af Dankort i 2023 – Afgørelse* (Cost study of Dankort in 2023 – Decision, in Danish only), ([link](#)).

E-commerce is characterized by higher merchant service charges compared to physical and serviced retail trade. When consumers or businesses use their payment cards online, e.g. for e-commerce and self-service solutions through apps on smartphones, the merchant service charge across card brands and types is typically higher than for card payments in physical and serviced retail trade. This should be seen in light of the fact that card acquirers typically have higher costs relating to security measures for online payments, including two-factor authentication, for example through the Danish MitID system, as well as increased costs to prevent and deal with fraud, which is more likely to occur via online payments than in physical and serviced retail trade.<sup>31</sup> Card acquirers can

<sup>31</sup> See Danmarks Nationalbank, Digital payment fraud in Denmark, *Danmarks Nationalbank Analysis*, No. 7, April 2024 ([link](#)).

choose to handle these tasks themselves or outsource them to third-party suppliers, typically the card schemes.

In addition, both card acquirers and banks suffer more financial losses due to the higher level of online fraud, which contributes to the overall cost of processing online payments.

The move towards more payments being made online is therefore increasing the overall cost of accepting card payments for merchants in Denmark. However, the increased use of self-service solutions on smartphones, such as supermarket apps, can also represent savings for merchants in the form of fewer card terminals and staff salaries. These savings probably create a financial incentive for merchants to implement and promote these solutions, which is also reflected in their increased prevalence.

## Wallet payments add another party and fee to the card payment system

In Denmark, the big techs' mobile wallet solutions, especially Apple Pay and Google Pay, are experiencing rapid and growing adoption, see box 7. This is because they are quick and easy to use and you can pay without carrying anything other than your phone, see chapter 3. However, wallet solutions also introduce an extra party into the card payment process. This increases complexity, affects the economic incentives of the card payment system and, all things equal, contributes to increasing the cost of card payments for banks.

Wallet solution providers, such as Apple and Google, act as a payment initiation service that enables card payments with a mobile phone. Although the underlying payment is still a traditional card payment processed through the parties in card system, a wallet payment also has to go through the wallet provider's systems. These systems handle tokenisation to protect payment data.<sup>32</sup>

The addition of an extra party not only means an extra technical intermediary, but also an extra transaction fee in the payment card system. This is because wallet providers typically charge a percentage and separate transaction fee from the card issuer for the cardholder having used their payment card through the wallet solution, see chart 27.

The transaction fee varies between the specific wallet solutions and the agreements made between the card issuing banks and the wallet provider. The transaction fee results in higher costs for banks when their customers make card payments through wallets. The banks cannot receive additional compensation from card acquirers as they typically already receive the maximum interchange fee under European regulation, see above and box 6.<sup>33</sup> Seen in isolation, the increased use of wallet solutions thus reduces banks' earnings on card payments.

In addition to the transaction fee, the introduction of wallet payments has also been associated with development costs for banks. At the same time, banks have ongoing costs for operating systems related to wallet solutions. This applies to

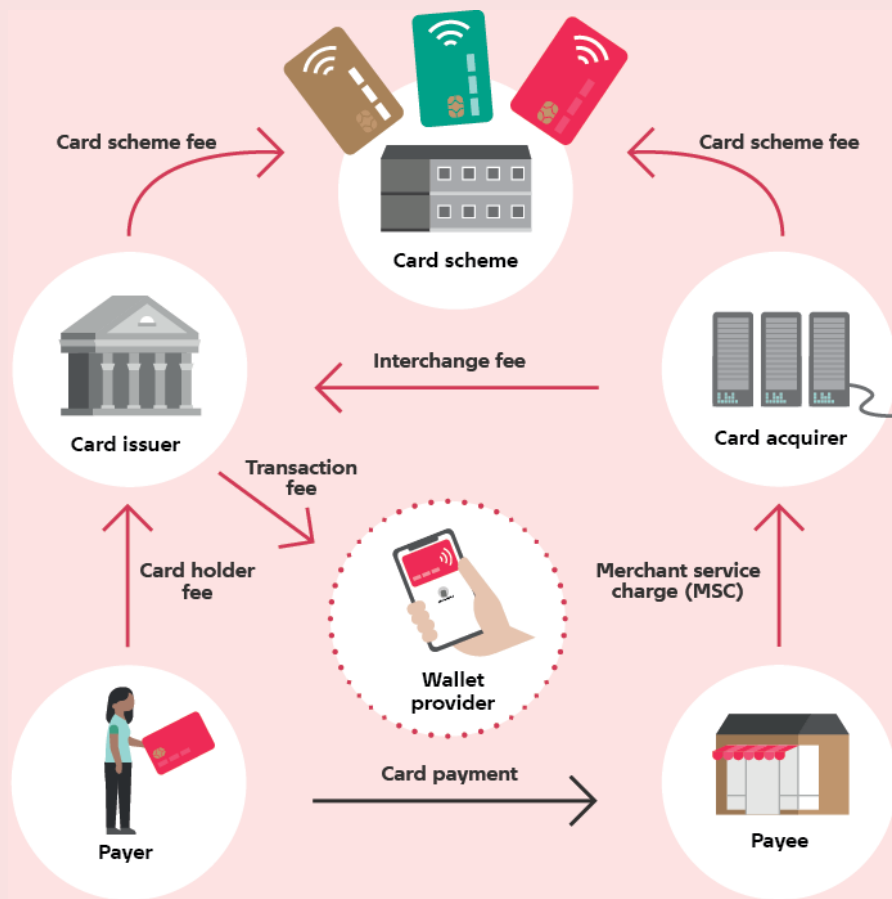
<sup>32</sup> In relation to card payments, a token is a digital representation of the payment card. Instead of using the card's actual payment card details, a unique code (token) is created that can be used for payment. This token has to be decrypted before the payment card data are accessible. This makes payments more secure as the card details are not shared directly with the payee.

<sup>33</sup> For Dankort payments, card-issuing banks receive an average interchange fee of 0.125 per cent. Banks can therefore receive additional compensation for using Dankort in wallet solutions, but due to regulation, the total compensation cannot exceed the compensation for international debit cards.

both international cards – Visa and Mastercard – and Dankort. Overall, this increases the cost of card payments, including for merchants.<sup>34</sup>

CHART 27

Wallet payments add another party and fee to the card payment system



Note: The red arrows indicate fees that are paid between the parties involved in a card payment. The dotted circle indicates that for wallet payments another party is involved in the card payment system.

<sup>34</sup> This is reflected in the fact that in the latest cost analysis of Dankort from 2023, the Danish Competition and Consumer Authority included the banks' operating costs related to Apple Pay in the cost base, and therefore the revenue cap for Dankort. This means that Nets can set a higher merchant service charge for merchants as a result of banks' increased costs associated with Apple Pay. This allows Nets to use the increased profit to compensate the banks through a higher interchange fee. According to the Danish Competition and Consumer Authority, the inclusion of operating costs for Apple Pay is due to the fact that mobile payment solutions have become part of the infrastructure of the payment system together with physical cards in physical commerce, see Danish Competition and Consumer Authority, *Omkostningsundersøgelse af Dankortet i 2023 – Afgørelse* (Cost study of Dankort in 2023 – Decision, in Danish only) ([link](#)).

## BOX 7

### Big techs' wallet payment solutions are among the most widely used

Big techs like Apple and Google have played a key role in the rapid adoption of mobile payments, both in Denmark and internationally. Their strong competencies in digitalisation and technology allow them to develop solutions that are user-friendly, intuitive and adopted quickly by consumers.

Big techs have developed technology that allows payment cards to be stored in a digital wallet on smartphones, giving consumers the option to pay using only their phone. Biometric authentication, such as facial recognition or fingerprints, provides a smoother and more user-friendly payment experience for many consumers compared to physical payment cards, which require the use of a PIN.

#### Big techs have specific competences that give them a competitive advantage

The big techs' business models are data-driven, giving them in-depth knowledge of user needs and preferences. By collecting data from their core services – such as hardware, software or e-commerce platforms – the companies can develop customised and efficient solutions that adapt to users' wants and needs, such as direct payment with wallet solutions in smartphone apps. Combined with their large network of users and technological expertise, this has enabled them to quickly attract users to their solutions and gain a significant position in the mobile payment market. Therefore, it can be expected that in the future, big techs may play an even bigger role in the retail payment market.

#### Regulation of big techs' payment solutions

Big techs typically act as technology providers in relation to their payment solutions, such as Apple Pay and Google Pay. This means they fall outside a number of key provisions of payment legislation. This is because the legislation, both in Denmark and in the EU, imposes requirements for payment providers and third parties. However, these rules are primarily aimed at banks, payment institutions and third-party providers.

In Europe, there has been debate about the need to bring big techs under regulation, including payment services regulation. This is due to their unique position in the market, ability to quickly influence the payments landscape and their growing and significant role not only in the payments ecosystem, but also in other parts of society. The debate has resulted in the implementation of the Digital Markets Act, which aims to regulate the influence of big techs on digital markets and promote fair competition.<sup>1</sup>

<sup>1</sup> See Regulation (EU) 2022/1926 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act) ([link](#)).

## The use of mobile wallet solutions has reduced the use of Dankort

Wallet payments in Denmark are currently made primarily using international payment cards from Visa and Mastercard. This is also true in the case of co-badged Visa/Dankort or Mastercard Dankort cards, where payment is primarily made using the Visa or Mastercard part of the card. This is because most banks do not currently offer their customers the option to use Dankort in Apple Pay or Google Pay.<sup>35</sup>

This has, among other things, contributed to a decline in the number of Dankort transactions. In 2024, there were approximately 404 million transactions, which is lower than in 2019, when the option to use Apple Pay became available at all Danish banks. This corresponds to a reduction of just over 32 per cent, see chart 28. The total number of card transactions in Denmark increased 19 per cent during the same period.

<sup>35</sup> Danske Bank has enabled the use of Dankort in Apple Pay since October 2022, while Nordea customers have been able to use Dankort in Apple Pay since November 2024. No banks offer the use of Dankort in Google Pay, which reflects the fact that Google Pay does not support the use of co-badged payment cards.

The increased use of international payment cards, such as Visa and Mastercard, is not only due to the introduction of wallet solutions. The use of international cards has been increasing steadily for a number of years, even before the introduction of Apple Pay.

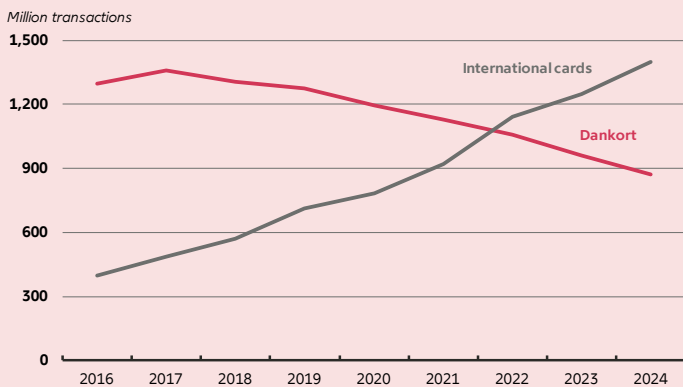
The increased use should be seen in the context of the economic incentives of banks, see above, and the additional functionalities offered by international payment cards, such as balance checks and reservation of purchase amounts on the cardholder’s payment account. Additionally, more children and young people have received payment cards, including primarily those from Visa and Mastercard.<sup>36</sup> In 2024, the number of payments with international payment cards were approximately 688 million transactions higher than in 2019, which corresponds to almost a doubling. The growth in the total number of card transactions in Denmark is therefore solely driven by international payment cards.

Similarly, the total turnover paid with international payment cards has also been increasing for several years and in 2024 was approximately kr. 343 billion, which is approximately kr. 70 billion more than the total turnover with Dankort, see chart 29.

CHART 28

**The use of international payment cards in Denmark is increasing and has doubled since 2019**

Total number of transactions made with payment cards in Denmark

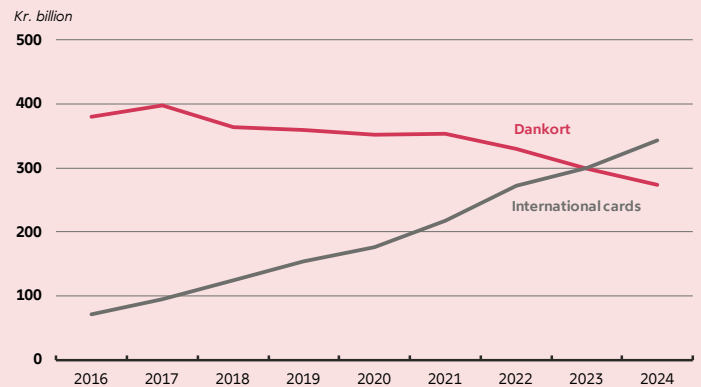


Note: The time series covers card payments in physical commerce, e-commerce and self-service environments in Denmark.  
Source: Nets and Danmarks Nationalbank.

CHART 29

**In 2024, the total card turnover with international payment cards in Denmark was higher than with Dankort**

Total value paid with payment cards in Denmark



Note: The time series covers card payments in physical commerce, e-commerce and self-service environments in Denmark.  
Source: Nets and Danmarks Nationalbank.

**Integration of Dankort into Apple Pay at more banks does not necessarily lead to increased use of Dankort straight away**

Banks have been reluctant to integrate Dankort into Apple Pay. This may be a consequence of the lower interchange fee that banks receive for Dankort payments, see above. This means that banks have less incentive to invest and incur the costs associated with the integration of Dankort into Apple Pay, as, all else being equal, it is more profitable for them to only offer their customers Apple Pay with international cards.

<sup>36</sup> Banks are generally not allowed to issue Dankort cards to young people under the age of 18, as Dankort cards allow overdrafts on the cardholder’s account, see chapter 5.

Although several banks have announced that they will start offering Dankort in Apple Pay in 2025, this will not necessarily lead to increased use of Dankort in the short term. This is because customers will probably have to re-integrate their co-badged Visa/Dankort or Mastercard Dankort cards into Apple Pay in order to use the Dankort part of the cards. Many consumers will likely only do this when renewing their payment card.

# 05 Dankort influences the structure of the Danish card acquiring market

Dankort was launched in 1983 as a collaborative card payment solution among Danish banks and subsequently developed into a widely used payment card in Denmark.

Dankort's ownership has changed over the years. It is now owned by Nets, which is part of an international Italian payment company, Nexi, see box 8. Nets and Dankort are organizationally separate, but Nets performs a number of different roles in relation to Dankort, including as the sole acquirer of Dankort payments.<sup>37 38</sup>

As the sole acquirer of Dankort transactions, Nets holds the largest share of the Danish card acquiring market of between 75-80 per cent of the total market for the number of payments acquired in Denmark.<sup>39</sup>

## BOX 8

### Nets and Dankort are owned by the Italian payment company Nexi

In 1983, Danish banks collaboratively launched Dankort, a national card payment solution. Dankort was owned by Pengeinstitutternes Købe- og Kreditkortaktieselskab, PKK. This meant that all banks, regardless of size, could offer their customers a payment card that could be used throughout Denmark.<sup>1</sup>

The ownership of Dankort has changed several times over the years. In 1986, PKK merged with Pengeinstitutternes BetalingsSystemer, PBS, which in 2010 became Nets after merging with the corresponding Norwegian company Nordito. In 2014, the Norwegian and Danish owner banks sold Nets to two American private equity funds and ATP, a Danish pension fund. They in turn sold Nets to the Italian payment company Nexi in 2021.<sup>2</sup> Dankort has thus been foreign-owned since 2014, while other national payment cards are typically owned by the national card-issuing banks.<sup>3</sup>

Nexi's primary business area is card payment acquiring and terminal management. The ownership of a national payment card, Dankort, is therefore one of several business areas for Nexi. It differs from other European card schemes, as well as Visa and Mastercard, which are centred around the payment card system.

<sup>1</sup> See Danmarks Nationalbank, *Betalingsformidling i Danmark* (Payment Systems in Denmark, June 2005 ([link](#))).

<sup>2</sup> See Nets' press release, 16 June 2021 ([link](#)).

<sup>3</sup> The national payment cards in Norway, Germany, France, Italy, Belgium and Portugal are still bank-owned.

<sup>37</sup> European legislation stipulates that payment card companies and other organisations processing card payment transactions, such as card acquirers, must be independent in terms of accounting, organisation and decision-making processes, see Regulation (EU) 2015/751 of the European Parliament and of the Council of 29 April 2015 on interchange fees for card-based payment transactions ([link](#)).

<sup>38</sup> Nets is also the sole provider of issuing and processing services related to Dankort for the card-issuing banks.

<sup>39</sup> The total market covers both physical commerce, self-service environments, and e-commerce. Nets' market position should be seen in the context that Nets is currently the sole acquirer of Dankort, which in 2024 accounted for nearly 40 per cent of the total number of payments in Denmark. Nets' market share has been declining in recent years.

### **Dankort is subject to Danish price regulation**

In addition to the general common European rules that regulate the payment market in Denmark, Dankort is the only payment solution in Denmark covered by Danish price regulation, see box 6. This means that every two years, the Danish Competition and Consumer Authority conducts a cost study of the operation of the Dankort system, which is used to determine the maximum payment that card acquirers, currently only Nets, may charge for acquiring Dankort transactions in physical and serviced retail trade.<sup>40</sup>

The cost analysis thus sets a revenue cap for Nets, which subsequently determines the merchant service charges for the merchants based on the revenue cap and Nets' expectations for the number of Dankort transactions in physical and serviced trade in the coming two years.<sup>41</sup> The price regulation allows Nets to set differentiated prices in up to 10 intervals based on the transaction volume of the merchants.

### ***Only physical and serviced retail trade is covered by the price regulation of Dankort***

As the price regulation of Dankort only determines what Nets may charge in physical and serviced retail trade<sup>42</sup>, Nets is free to set the merchant service charges for Dankort for payments in certain self-service environments, e.g. ticket vending machines and on the internet, as long as the prices are not considered unreasonable.<sup>43</sup>

Physical and serviced retail trade accounts for a decreasing share of total Dankort payments. However, the revenue from physical and serviced retail trade must continue to fund the operating costs of the entire Dankort system in physical commerce. This dynamic may result in increasing merchant services charges for Dankort payments in physical commerce as the number of transactions in physical commerce decreases, while Nets' total costs for operating the Dankort system in physical commerce have remained largely unchanged in the last two cost studies conducted by the Danish Competition and Consumer Authority.<sup>44</sup>

If policymakers wish to ensure cheap payments in stores, it may therefore make sense to include Dankort payments online and self-service environments in the price regulation, to avoid that fewer Dankort payments in physical and serviced trade result in increased costs for stores to accept Dankort payments, see chapter 6. However, the regulation must be weighed against the disadvantages that price regulation generally entails.

### **Regulation makes Dankort payments cheap for physical stores**

In the vast majority of cases, Dankort is the cheapest payment card to accept for merchants in physical and serviced retail trade. This should be seen in light of the price regulation, which also means that the merchant service charges for Dankort are fully transparent and accessible to everyone.<sup>45</sup>

<sup>40</sup>The costs of operating Dankort consist of the banks' costs of issuing Dankort – such as card production, transaction processing and customer service – and Nets' costs of acquiring Dankort transactions, which primarily cover IT costs and ongoing maintenance. For more details, see the Danish Competition and Consumer Authority, *Omkostningsundersøgelse af Dankort i 2023 – Afgørelse*, January 2024 ([link](#)).

<sup>41</sup>The merchant service charge can be changed during the two-year period if, for example, the number of transactions or payees is smaller or larger than expected, see the Executive Order on price models for certain types of payment instruments pursuant to section 123(4) and (5) of the Danish Payments Act ([link](#)).

<sup>42</sup>See the Danish Competition and Consumer Authority, *Payment Report 2024* ([link](#)).

<sup>43</sup>In 2023, the Danish Supreme Court upheld two decisions from the Danish Competition and Consumer Authority stating that Nets had charged online stores unreasonable high fees for Dankort payments for a number of years, see the rulings and final judgement ([link](#)).

<sup>44</sup>See Danish Competition and Consumer Authority, *Omkostningsundersøgelse af Dankort i 2024 – Afgørelse* (Cost study of Dankort in 2023 – Decision, in Danish only), ([link](#)).

<sup>45</sup>See *Prices for Dankort agreements* ([link](#)).

The merchant service charge for Dankort in physical and serviced retail trade is on average 0.20 per cent of the total transaction value. In other words, if a customer pays kr. 500 with Dankort, the retailer must pay kr. 1 to Nets to acquire the Dankort payment. The size of the acquirer fee for each retailer is mainly determined based on the merchants' transaction volume over the past four quarters and amounts to 0.17-0.50 per cent of the total transaction value, see table appendix 1.

The merchant service charges for Dankort have been stable for a number of years, but increased in 2024 by approximately 9 per cent on average per payment, even though Nets' revenue cap for Dankort for 2024 and 2025 was reduced by approximately 30 per cent. According to Nets, the price increases are due to the fact that the number of transactions has fallen more than operating costs.<sup>46</sup> Despite the recent price increases, Dankort is still the cheapest for most merchants, as the merchant service charge for international payment cards is typically 0.5-1.5 per cent of the transaction value.<sup>47</sup> However, the price difference should be seen in light of the fact that international payment cards can be used globally and offer more functionalities, such as balance control, customisable spending limits and geographical payment card blocking.<sup>48</sup>

When consumers purchase goods and services online or use self-service vending machines, Dankort prices are not subject to price regulation. Nets charges a fixed acquirer fee of 0.32 per cent of the transaction price for online purchases and kr. 0.50 for purchases at self-service vending machines.<sup>49</sup>

#### **Regulation may reduce incentives to invest in Dankort**

The cost regulation of Dankort can reduce the incentives for both Nets and other parties, including banks, to invest in Dankort, see chapter 4. This is because the revenue cap, and thus the merchant service charge that Nets can charge the stores, only covers the operating costs of the Dankort system, see box 6. All else being equal, this limits Nets' ability to cover its own costs for major investments in updates and modernisations of Dankort, but also economic incentives to promote investments in development among other players, in particular the banks, see also chapter 4. This may be one of the reasons why Dankort, unlike the international debit cards from Visa and Mastercard, does not offer features such as online balance checking, which allows cardholders to overdraw.<sup>50</sup> As a result, banks cannot issue Dankort cards to young people under the age of 18, as minors are not allowed to take on debt.<sup>51</sup>

The definition of operating costs to be covered under the regulation does not include investments in making Dankort more secure and resilient, including against cyber threats and new forms of fraud. All else being equal, this reduces Nets' and banks' economic incentives to make such investments.

<sup>46</sup> See Nets' press release from 25 March 2025, *Færre transaktioner medfører højere priser på Dankort* (Fewer transactions lead to higher Dankort prices, in Danish only) ([link](#)).

<sup>47</sup> Based on publicly available list prices and Dankort price calculator ([link](#)).

<sup>48</sup> See e.g. Danmarks Nationalbank, Digital payment fraud in Denmark, *Danmarks Nationalbank Analysis*, No. 7, April 2024 ([link](#)).

<sup>49</sup> Payments at self-service environments, such as ticket vending machines, tend to have a high proportion of low-value payments. For payments under kr. 250, kr. 0.50 is a higher merchant service charge than 0.20 per cent, which is the average merchant service charge for Dankort payments in physical and serviced trade. Similarly, kr. 0.50 will constitute a higher merchant service charge than the 0.32 per cent for online purchases for payments under approximately kr. 156.

<sup>50</sup> Dankort is a debit card that works 'offline-to-issuer'. This means that Dankort transactions are made without real-time online verification of sufficient fund on the underlying account with the card issuer.

<sup>51</sup> Some banks offer Dankort cards to young people under the age of 18, provided that parents or guardians are liable for any overdraft.

### **Dankort gives Nets a unique market position as card acquirer**

Nets' role as the sole acquirer of Dankort means that Nets is attractive to merchants, as it is the only card acquirer that can offer both Dankort, which is typically the cheapest card for merchants, and international payment cards.<sup>52</sup>

This may have contributed to Nets still having a market share of between 75-80 per cent of the total number of card payments in physical retail trade in Denmark in 2024, even though the number of Dankort payments has decreased significantly and accounted for 39 per cent of the total number of card payments in 2024, see chart 28.

This may also have meant that other card acquirers were not chosen, even though they were able to offer lower prices for acquiring of international cards such as Visa and Mastercard. If so, the total cost of accepting card payments for merchants in Denmark – covering both Dankort and international payment cards – may be higher than they would have been in a situation with multiple acquirers of Dankort.

In a payment report from autumn 2024, the Danish Competition and Consumer Authority concluded that, on average, Danish merchants can save around 40 per cent on merchant service charges for international payment cards if they choose the cheapest card acquirer over the most expensive, see box 9.

Even small reductions in merchant service charges for international payment card payments can result in savings for merchants and ultimately consumers. This is because the total card turnover with international payment cards in Denmark in physical commerce has increased significantly and in 2024 totalled approximately kr. 256 billion. This means that for every 0.10 percentage point decrease in the average merchant service charge, Danish merchants could, all else being equal, have saved around kr. 256 million in 2024.

If more card acquirers begin offering Dankort acquiring services, it is likely that market shares in the Danish card acquiring market will become less concentrated, as more acquirers will have the opportunity to offer a complete card acquiring package consisting of both Dankort and international payment cards. This can potentially reduce the cost of accepting card payments for merchants.

<sup>52</sup> The Danish Competition and Consumer Authority has assessed that the ability of other card acquirers to achieve sufficient market share to be able to offer competitive prices is limited by the fact that merchants prefer to enter into an agreement with one card acquirer that can offer both Dankort and international payment cards, see Competition Council decision of 29 August 2018 ([link](#)).

BOX 9

**The Danish Competition and Consumer Authority indicates that there is a lack of competition in the international payment card market in Denmark**

Unlike Dankort, merchant services charges for international payment cards such as Visa and Mastercard are not subject to price regulation. This means that card acquirers are free to set the merchant service charges for international payment cards as long as those fees do not violate section 122(1) of the Danish Payments Act, which prohibits unreasonably high prices and margins in connection with the execution of payment transactions.<sup>1</sup> As a result, it can be difficult to compare card acquiring fees for international payment cards across card acquirers and national borders, as prices, among other things, are determined by negotiations between the payee and card acquirer.

In Denmark, the Danish Competition and Consumer Authority oversees the competitive situation in the card payment market and the prohibition on unreasonable prices. According to the Danish Competition and Consumer Authority, the provision regarding the prohibition of unreasonable fees is necessary as full and effective competition has not been created in the payment card area in Denmark.<sup>2</sup>

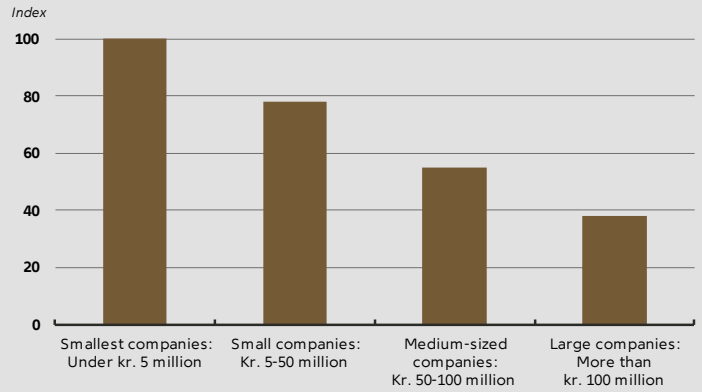
In the autumn of 2024, the Authority published a payment report that focused on such aspects as merchant service charges when paying with international payment cards.<sup>3</sup> According to the report, merchants and other payees can save an average of 40 per cent on merchant service charges if they choose the cheapest card acquirer instead of the most expensive.

Continues ...

CHART B1

**On average, the smallest payees pay the most for card acquiring for international card payments**

Relative card acquiring prices among payees grouped by card turnover with international payment cards



Note: For confidentiality reasons, the Danish Competition and Consumer Authority has calculated a simple average across card acquirers for each grouping of merchants and further normalised, so that the calculated simple average of the merchant service charge for the smallest merchants is set to index 100. The calculation is based on a sample of card acquirers in Denmark, which together have a market share (measured in value) of 60-85 per cent.

Source: Danish Competition and Consumer Authority, Betalingsrapport 2024 (Payment Report 2024, in Danish only) ([link](#)).

... continued

### Smallest merchants pay the most for card acquiring

As with Dankort payments, most card acquirers of international payment cards offer differentiated merchant service charges, which primarily depend on the payee's card turnover. According to the Danish Competition and Consumer Authority's latest payment report, the average merchant service charge for merchants with an annual turnover of less than kr. 5 million was approximately 2.5 times higher than for companies with an annual turnover of more than kr. 100 million, see chart B1. According to the Authority, the price difference between small and large merchants cannot be explained by differences in the products that the different sizes of merchants buy, as the basic payment service, card acquiring, is the same.

The difference in merchant service charges should also be seen in light of the fact that the acquirer's costs to other players in the card payment system are largely independent of the payee's card turnover. This means that the difference in merchant service charges alone results in a varying gross margin for card acquirers, see chart B2.

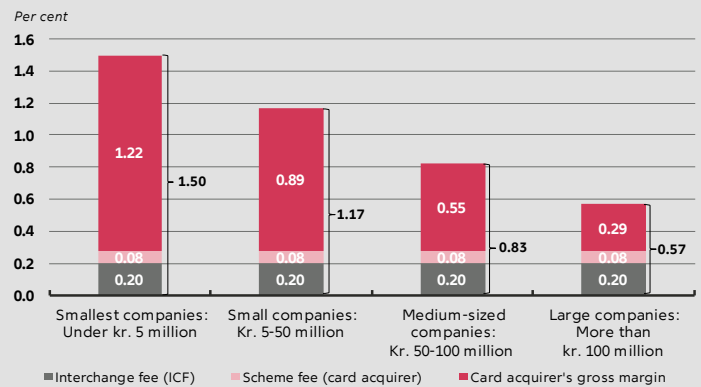
Based on publicly available list prices and the Danish Competition and Consumer Authority's indexation of merchant service charges across different payment recipients, estimates can be made for the relative gross margin of card acquirers, see chart B2.<sup>4</sup>

Overall, estimates of card acquirers' gross margin, grouped by merchants card turnover, indicate that acquirers have more bargaining power over the smallest merchants.

CHART B2

### Card acquirer profits on international debit card acquiring are estimated to be higher for the smallest merchants

Average acquirer fees grouped by payee turnover, broken down by subcomponents.



Note: The chart is computationally constructed based on estimates from the Danish Competition and Consumer Authority (chart B1 above) and publicly available merchant service charges and licence fees for card companies. It is assumed that the smallest merchants pay a merchant service charge close to list prices. It is further assumed that card acquirers pay the maximum allowed interchange fee to the card issuer (0.2 per cent) and the highest licence fee (0.08 per cent) to the card company.

Source: Danish Competition and Consumer Authority, Nets and own calculations.

<sup>1</sup> According to section 122 of the Danish Payments Act, prices and margins are unfair if they are higher than would be the case under effective competition, see also box 3.

<sup>2</sup> See the Danish Competition and Consumer Authority, Betalingsrapport 2022 (Payment Report 2022, in Danish only), ([link](#)).

<sup>3</sup> See the Danish Competition and Consumer Authority, Payment Report 2024 ([link](#)).

<sup>4</sup> Sensitivity calculations show that a smaller average acquirer fee for the smallest merchants results in a larger relative difference in acquirer gross margin between the smallest and largest merchants.

## Dankort is no longer estimated to be the most cost-effective payment card for Danish society

Under the auspices of the Danish Payments Council, Danmarks Nationalbank last analysed the societal costs of payments in 2016.<sup>53</sup> Among other things, the study showed that there are significant economies of scale in card payments due to

<sup>53</sup> The societal costs of payments include the internal resource costs of the parties involved in the payment, such as the time it takes for the payer to complete a payment. Societal costs do not include fees to other parties involved in the payment, as an expense for one party will be an income for another. This means, for example, that merchant service charge for card payments are not included in the societal cost, as they are an income for card acquirers. The societal costs are therefore not an expression of the private costs of payments for each party.

high fixed costs for payments infrastructure, especially IT systems.<sup>54</sup> Widely used card payment solutions therefore have a lower average societal cost per payment.

In 2016, the total cost to society for all card payments across physical commerce and e-commerce was estimated at approximately kr. 2.4 billion. Furthermore, the 2016 study showed that Dankort was the most cost-effective payment solution for society, with an average societal cost of approximately kr. 2.4 per payment. In comparison, the societal cost was approximately 4.1 kr. for international debit cards, such as Visa debit and Mastercard Debit. Since 2016, however, there have been significant shifts in the card payment market in Denmark. This is partly due to the introduction of wallet payments, such as Apple Pay and Google Pay, which have contributed to a reduction in the use of Dankort in favour of international debit cards, see chapter 4.

The number of Dankort payments in physical commerce has decreased from around 1.1 billion transactions in 2016 to around 700 million transactions in 2024. All else being equal, this means that the average societal cost of Dankort has increased, as the fixed costs of running the Dankort system are spread over fewer transactions. In contrast, the number of international debit card transactions has almost quadrupled from around 300 million transactions in 2016 to over 1.1 billion transactions in 2024. Seen in isolation, this reduces the average societal cost per payment of international debit cards. A Dankort payment is therefore no longer estimated to be the most cost-effective payment card for society, see chart 30.<sup>55</sup> It should be noted that this estimate is subject to some uncertainty, as cost data was collected during the 2016 survey.

Based on the 2016 cost study, calculations also show that the average societal cost per payment for international debit cards is lower for society than for Dankort for any given number of card transactions up to 1.2 billion payments. This is illustrated by the fact that, up to 1,2 billion card transactions, the cost curve for the average societal cost per payment of international debit cards is below the corresponding curve for Dankort, see chart 31. This indicates that Dankort's historical ranking as the cheapest payment solution for society has only been a result of more payments being made with Dankort than international debit cards in 2016.

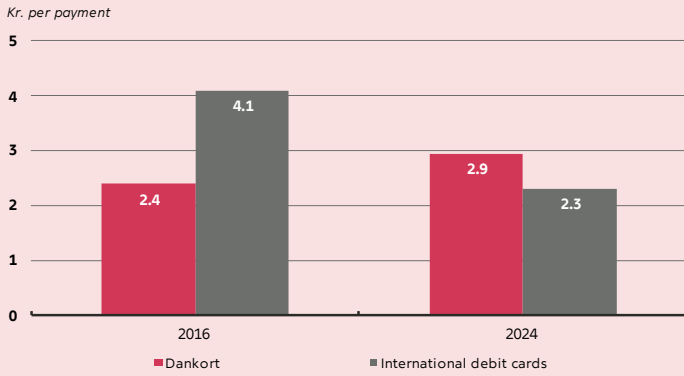
<sup>54</sup> See Analysis from the Danish Payments Council: There are significant economies of scale in payments, March 2019 ([link](#)).

<sup>55</sup> The fixed costs of operating both the Dankort system and the international payment cards may have changed since 2016, but if the changes have remained roughly the same, Dankort will no longer be the most cost-effective payment card for society. A more precise determination of the specific levels of societal costs for card payments with particular card types and brands in 2024 would require new detailed data collection, as the development of cost levels is unknown.

CHART 30

**Dankort is no longer estimated to be the most-cost-effective payment card for Danish society**

Average societal cost per card payment



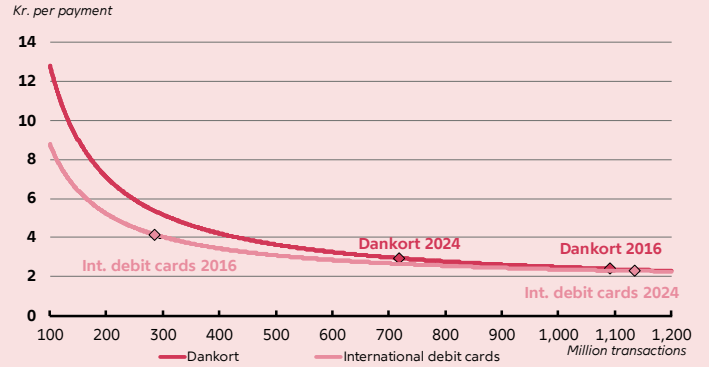
Note: Societal costs for 2024 are calculated as a counterfactual scenario based on the cost level in 2016 distributed according to the transaction values for 2024.

Source: Calculations based on the Danish Payments Council's 2016 cost analysis.

CHART 31

**The average cost to society decreases as the number of card transactions increases**

Average societal cost per card payment



Note: See note to chart 30 for further details. The fixed costs of operating both the Dankort system and the international payment cards may have changed since 2016, but if the changes have remained roughly the same, a Dankort payment will no longer be the most cost-effective payment card for society. The calculations are only meant to illustrate that the societal cost depends on the number of transactions. Determining the level of societal cost in 2024 will require new detailed data collection, as the development of cost levels is unknown.

Source: Calculations based on the Danish Payments Council's 2016 cost analysis.

## 06

# Upcoming policy initiatives in the card payment market

The previous chapters show that the Danish retail payment market has undergone major changes in just a few years. The use of international payment cards from Visa and Mastercard is increasing, while the use of Dankort is decreasing. This is partly due to the increased use of wallet solutions on mobile phones, which, in addition to affecting people's payment behaviour and -preferences, has also affected the underlying structures of the Danish card payment market, see chapter 4.

Developments in the card payment market have made it clear that it is relevant to adjust current regulation to improve the regulatory framework of the card payment market in Denmark, among other things, to support that card payments also in the future are secure, efficient and resilient.

As a result of the changes in the card payment market and the Danish Competition and Consumer Authority's payment report, which indicates a lack of competition in the Danish card payment market, see chapter 5, the Minister for Industry, Business and Financial Affairs has concluded that there is a need to ensure that Dankort can keep up with developments and remain an attractive alternative to international payment cards.<sup>56</sup>

Based on the government's desire to future-proof Dankort, the Danish Financial Supervisory Authority sent a legislative amendment regarding payment service access to payment systems for consultation in late 2024. Among other things, the proposal will ensure that card acquirers other than Nets will be able to acquire Dankort payments in the future, see box 10.

### BOX 10

#### **Proposed amendment to the Payments Act to ensure better competitive conditions for card acquiring in Denmark**

The Danish Financial Supervisory Authority submitted a proposal to amend section 64 of the Danish Payments Act for consultation on 20 December 2024.<sup>1</sup> In its comments to the bill, the Ministry of Industry, Business and Financial Affairs stated that the amendment will clarify that payment systems *must* give payment service providers access to their payment systems on objective, non-discriminatory and proportional terms. The Ministry of Industry, Business and Financial Affairs also explained that the change will ensure a level playing field for the acquiring of e.g. Dankort payments.

The Ministry stated that the bill is the first of several yet unpublished initiatives to ensure better framework conditions for acquirers, payment schemes, merchants and consumers in the market for card payments in Denmark. The Ministry also announced that such upcoming initiatives will consist of a change in the Danish price regulation, which currently only covers Dankort.

<sup>1</sup> See *Draft Act to amend the Financial Business Act, the Alternative Investment Fund Managers Act, the Anti Money Laundering Act, the Securities Dealers Act, the Capital Markets Act, the Insurance Business Act and various other acts* ([link](#)).

<sup>56</sup> See the press release from the Ministry of Industry, Business and Financial Affairs, *The Minister of Industry, Business and Financial Affairs: more competition in the payments market*, September 2024 ([link](#)).

### **More acquirers of Dankort can reduce the overall cost of accepting card payments for merchants**

Due to price regulation, Dankort is cheap to accept for merchants, see chapter 5. Nets is currently the sole acquirer of Dankort and thus the only acquirer that can offer a complete package of acquiring services for both Dankort and international payment cards, such as Visa and Mastercard. This may contribute to the fact that Nets currently has a market share of between 75-80 per cent of the acquiring market in Denmark, even though Dankort only accounts for around 39 per cent of the total number of card transactions, see chapter 5.

If more card acquirers are able to offer acquiring of Dankort payments in the future, it could potentially create downward pressure on the overall cost of accepting card payments for merchants in Denmark. This is especially true for international payment cards, which are not subject to the price regulation. In addition, more acquirers of both Dankort and international cards, such as Visa and Mastercard, may result in more merchants accepting Dankort. This applies, for example, to merchants who currently have card acquiring agreements with acquirers other than Nets and therefore cannot accept Dankort unless they enter into multiple card acquiring agreements. The change can thus help to support more payments being made as Dankort payments in the future. In isolation, this could potentially lead to Dankort becoming cheaper for merchants, as the regulatory cost base has to be allocated across more payments.

However, Nets will incur costs associated with opening the Dankort system to other acquirers. If these costs are included in the cost base, it will, in isolation, result in a higher merchant service charge for merchants with respect to Dankort payments.

### **Adjustments in Danish price regulation can make Dankort more resilient**

In addition to the proposed legislative amendment regarding other card acquirers' access to Dankort, the Ministry of Industry, Business and Financial Affairs has announced several other coming initiatives, including adjustments to the Danish price regulation, see box 10.

In this context, it may be relevant to adjust the cost base and expand the price regulation to include Dankort transactions on the internet and self-service environments, as the card payment market has changed significantly since the current price regulation was introduced in 2005.<sup>57</sup>

For example, it may be relevant to consider including development costs in the cost base that forms the regulatory revenue cap for Dankort payments, see chapter 5. This could help future-proof Dankort. This reflects the fact that a higher revenue cap can give the different parties in the Dankort system, including Nets and the banks, an increased incentive for continuous development and innovation. That could make Dankort more resilient against cyber attacks and new forms of fraud. However, expanding the cost base will, in isolation, increase the merchant service charge for Dankort payments.

The current price regulation only applies to merchant service charges in physical and serviced retail trade, i.e. not payments on the internet and in certain self-service environments, e.g. ticket vending machines. This means that the costs of operating the Dankort system in physical commerce are continuously allocated over fewer payments, as physical and serviced transactions account for a decreasing share of total Dankort payments. If policymakers wish to ensure low costs for merchants when accepting Dankort payments, and if the intention is to

<sup>57</sup> See *Executive Order on the calculation of the annual subscription in accordance with section 14(3) of the Act on Certain Means of Payment* ([link](#)).

continue regulating Dankort, it may therefore be relevant to consider whether Dankort payments on the internet and in all self-service environments should be included in the price regulation going forward. However, the regulation must be weighed against the disadvantages that price regulation generally entails.

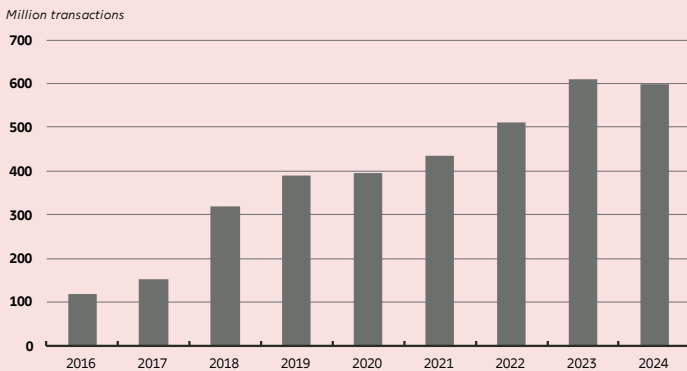
# 07 Instant payments can make retail payments more efficient and resilient

In 2024, approximately 600 million instant payments were made in Denmark, see chart 32. This equates to each citizen making an average of 100 instant payments annually. This is particularly due to the frequent use of MobilePay for person-to-person payments, see chapter 3. However, instant payments are still used for a limited portion of payments by Danish citizens in physical stores and online. In 2024, payments to merchants based on credit transfers, especially instant payments, accounted for around 6 per cent of total digital payments, see chart 33.

Wider adoption of instant payment solutions can help increase the efficiency and resilience of payments in retail stores and online. This is because payment solutions based on instant payments can involve fewer players and use a different and separate infrastructure than other widely used payment solutions, including payment cards.

CHART 32

### The number of instant payments has increased fivefold since 2016

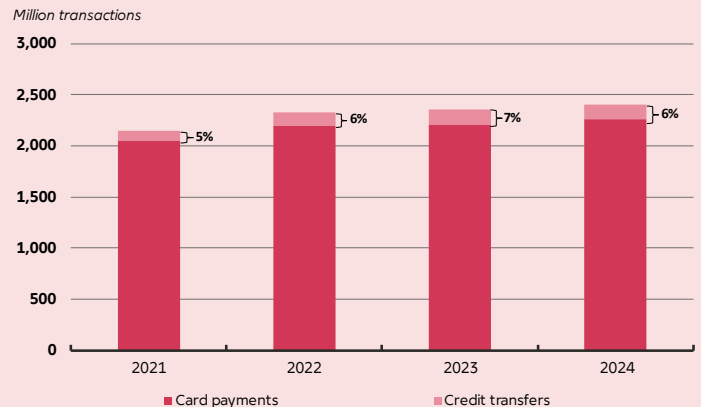


Note: The number of instant payment increased significantly from 2017 to 2018 when MobilePay started using instant payments, see chapter 3.  
Source: Danmarks Nationalbank.

CHART 33

### Credit transfers are used to a limited extent for in-store and online payments

Share of digital payments in physical commerce, self-service environments and e-commerce based on credit transfers, especially instant payments



Note: The total number of digital payments is calculated as the sum of the total number of card payments and mobile payments based on credit transfers.  
Source: Danmarks Nationalbank.

### Payment solutions based on instant payments may involve few parties

If future mobile payments are increasingly based on instant payments in physical commerce and for online purchases, it could potentially contribute to more

efficient retail payments. This is due to the fact that payment solutions based on instant payments can be designed to involve few players, see the stylised example in chart 34. This means that fewer parties need to be involved in the payment and compensated for processing payments based on instant payments compared to payments based on payment cards, including wallet payments, see chapter 4. Instant payments would therefore seem to have the potential to become a cheaper, or at least as cheap, alternative to existing payment solutions, such as physical payment cards or wallet payments.

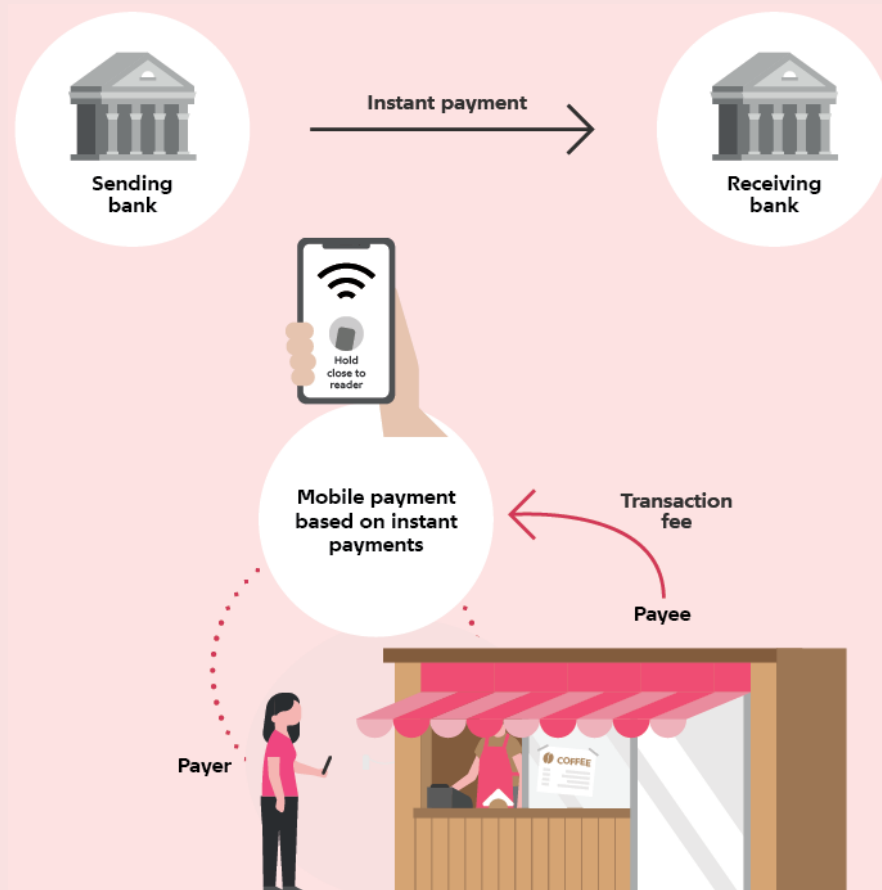
At the same time, instant payments are made instantly and directly between the payer and the payee's bank account. This means that the payee has the amount paid available within seconds after the payer has made the payment. Payment solutions based on instant payments thus provide merchants faster access to cash flow from sales inside and outside bank opening hours.<sup>58</sup> For consumers, instant payments will provide a direct and transparent payment experience similar to cash payments, as the payer's account is debited instantly, which is displayed immediately in their mobile or online banking application.

<sup>58</sup> Existing bookkeeping systems used by stores are often not designed to handle direct deposits from customers into their main account. Instant payment solutions can address this by offering an interim account where payments are collected and transferred together, typically once or several times a day. This reduces the number of small transactions and minimises the administrative burden on stores.

CHART 34

### Mobile payment solution based on instant payments can involve fewer players and fees than card payments

Stylised payment flow and fee structure for a mobile payment solution based on instant payments



Note: In the stylised example, a mobile payment solution based on instant payments connects the payer and the payee. The payment solution utilises the phone's NFC technology, allowing the payer to pay in the same way as wallet solutions such as Apple Pay and Google Pay, while the payment is made directly between the payer's and the payee's (merchant's) banks. The red arrow indicates that only one transaction fee is paid from the payee to the mobile payment service provider. The mobile payment service provider can also use economic incentives targeted at commercial partners to promote the adoption of their solution. However, this would contribute to a less cost-effective payment solution, as more players would have to be paid. In addition to the sending bank, receiving bank, payer and payee, clearing and settlement systems will also be involved in mobile payments based on instant payments.

### Wider adoption of multiple payment solutions can increase the resilience of retail payments in Denmark

Although existing payment solutions are continuously becoming more secure and resilient, a more resilient payment system can be achieved at society level by promoting the use and spread of payment solutions based on different payment infrastructures. This is because it gives Danish citizens access to several different

payment solutions that can ensure continuity of payments. If one payment solution is unavailable for a short or long period of time, consumers and businesses continue to have access to other solutions that they can easily use.<sup>59</sup> However, this requires there being several different solutions on the market that have a high degree of adoption and utilise a different infrastructure.

Increased adoption of payment solutions based on instant payments in stores can therefore help increase the resilience of retail payments in Denmark. This is because instant payments use a different and separate infrastructure compared to card payments and cash. This will reduce dependencies on specific payment card networks and reduce vulnerability to technical failures or disruptions of one or more parties involved.<sup>60</sup>

### **Convenience is important for wide adoption of mobile payments based on instant payments in physical commerce**

Although payment solutions based on instant payments already exist in Denmark, such as MobilePay, the use of instant payments is limited in physical commerce and online shopping, see chart 33. This indicates that consumers currently find existing payment solutions, including mobile wallet solutions and card payments, more convenient to use, see chapter 3.

The most common mobile wallet solutions in Denmark, i.e. Apple Pay and Google Pay, are based on NFC technology (Near Field Communication) in smartphones. This technology allows smartphones to be used to make payments at existing payment terminals in the same way as contactless card payments – by holding a phone up to the card terminal. Other mobile payment solutions, such as MobilePay, have used Bluetooth technology and QR codes instead, which involve several manual steps, such as opening the app and scanning the code, to complete the payment. This is partly because access to NFC technology has been limited in Apple products until 2024 to be used exclusively with Apple Pay, see box 11. As a result, other payment service providers have not been able to offer a wallet solution based on the same contactless technology on iPhones.<sup>61</sup> Overall, this has contributed to making payments more time-consuming and less convenient for payment solutions on iPhones other than Apple Pay. Based on Danish citizens' preferences for convenient solutions, see chapter 3, this may help explain why some mobile payment solutions have achieved widespread adoption, while others are still only used to a limited extent.

While other technologies that offer a convenient payment experience may emerge in the future, for now, access to NFC is a prerequisite to offer consumers a similar user experience to existing wallet payment solutions. As a result, the European Commission has conducted an investigation into whether Apple's blocking of NFC technology has violated EU competition rules. Apple consequently opened up access to NFC in iPhones for third parties in 2024, see box 11.

<sup>59</sup> See Danmarks Nationalbank, Offline card payments as a payment contingency measure, *Danmarks Nationalbank Analysis*, no. 17, November 2023 ([link](#)).

<sup>60</sup> In addition, emergency solutions such as handheld cash registers integrated into smartphones and QR codes can enable payments to still be made.

<sup>61</sup> Access to NFC technology has not been limited on Android smartphones. Yet payment solutions have often opted not to offer NFC payments on Android devices, as they have prioritised the offering of a consistent user experience across different smartphone platforms.

## BOX 11

**Apple blocked third-party access to NFC technology in iPhone until 2024**

With the launch of Apple Pay, it became possible to pay on existing card terminals with an iPhone using the same Near Field Communication, NFC, technology used for contactless card payments. The solution is also known as tap-to-pay and is characterised by the fact that the payer can quickly and easily make a payment by double-tapping on their phone and holding it against the payment terminal. The payment is typically not authorised with a pin code, but instead uses biometrics such as facial recognition or fingerprints.

Since the launch of Apple Pay, Apple has blocked third parties from accessing NFC in Apple's iPhone operating system. This has meant that other payment solutions, such as MobilePay, have had to use other technology, such as Bluetooth or QR codes, to process payments with iPhones.

Following Apple's blocking of third-party access to NFC technology, the European Commission launched an investigation in June 2020 into whether Apple's behaviour violated European competition law.<sup>1</sup> The results of the investigation were presented in May 2022 and one of the conclusions was that Apple had used its dominant market position by blocking NFC technology on iPhones for third parties, thereby violating EU competition rules.<sup>2</sup>

As a result of the European Commission's investigation, Apple presented a number of proposals for obligations to counter potential legal consequences in January 2024.<sup>3</sup> These included the possibility for third parties to access the NFC technology on iPhones for free in the future. Apple also committed to other payment solutions being able to utilise Host Card Emulation, which enables secure storage of payment information without relying on physical elements in iPhones. The same technology is used by Google Pay, for example.

Following a public consultation, the European Commission decided in July 2024 to accept Apple's proposal to commit to allowing third parties access to the NFC technology in iPhones for 10 years, valid throughout the EEA.

<sup>1</sup> See European Commission: Antitrust: Commission opens investigation into Apple practices regarding Apple Pay, June 2020 ([link](#)).

<sup>2</sup> See European Commission: Antitrust: Commission sends Statement of Objections to Apple over practices regarding Apple Pay, May 2022 ([link](#)).

<sup>3</sup> See European Commission: Antitrust: Commission seeks feedback on commitments offered by Apple over practices related to Apple Pay, January 2024 ([link](#)).



## More instant mobile payments in the future

Although mobile payments based on instant payments still represent a limited share of total in-store payments, see chart 33, they are expected to play an even greater role in retail payments in the future, including for online and in physical commerce. This is partly because the infrastructure to support instant payments is in place and is continuously being developed. Technical barriers, such as blocking of NFC, have been removed and there is also a European focus on spreading payment solutions based on instant payments. In this context, future settlement of instant payments in Denmark via the common European settlement system for instant payments, TIPS, can be used by payment service providers to develop new and improved payment solutions to settle instant payments. This applies to both national and intra-European instant payments, see box 12.

BOX 12

**New payment infrastructure and regulatory changes can support the adoption of instant payments**

In 2020, based on a preliminary analysis and dialogue with the financial sector, Danmarks Nationalbank decided to migrate settlement in Danish kroner from Kronos2<sup>1</sup> to the pan-European system, TARGET Services.

TARGET Services includes the central system for the settlement of interbank payments T2, the securities settlement system T2S and the instant payment settlement system TIPS. The migration is scheduled for Easter 2025.

The migration of Danish instant payments to the pan-European payment platform, TIPS, initially concerns instant payments in Danish kroner, but will eventually enable cross-border instant payments between different currencies. In this context, Danmarks Nationalbank decided to join a TIPS cross-currency project in January 2024, together with the European Central Bank and Sveriges Riksbank.

Initially, this cross-currency service will be implemented for the participating currencies in TIPS, i.e. Danish kroner, Swedish kronor and euro. The project will make it possible for a payer to initiate a payment in, for example, Danish kroner, which the payee can immediately receive in euro or Swedish kronor. In the long term, it will also be possible to expand with other currencies joining TIPS.

In addition to the migration of Danish kroner to TARGET Services, new pan-European regulations specifically for instant payments and access to central banking systems will enter into force during April 2025.<sup>2</sup> The purpose of the regulation includes increasing the efficiency of the overall European retail payments market by increasing the adoption of instant payments in Europe and encouraging more competition and innovation in the payments area. This will mean that payment service providers other than banks, such as providers of mobile payment solutions based on instant payments, will be able to participate directly in the settlement of retail payments.

<sup>1</sup> Kronos2 is Danmarks Nationalbank's current RTGS system. RTGS stands for Real Time Gross Settlement. This means that payments in Kronos2 are settled individually and instantly.

<sup>2</sup> See Regulation (EU) 2024/886 of the European Parliament and of the Council of 13 March 2024 amending Regulations (EU) nos. 260/2012 and (EU) 2021/1230 and Directives 98/26/EC and (EU) 2015/2366 as regards instant credit transfers in euros ([link](#)).

**Mobile payment solutions based on instant payments can be designed with the same convenience as wallet solutions in the future**

Danish citizens prefer payment solutions that convenient to use, which has been a contributing factor to the rapid adoption of wallet solutions like Apple Pay and Google Pay. These solutions offer a user experience where payment can be completed quickly and intuitively, for example by double tapping the side of the phone and holding it up to the payment terminal, see above. With the recent access of third parties to NFC technology in iPhones, a significant technological barrier to the uptake of mobile payments based on instant payments has been removed. This makes it possible for other players to design or customise their solutions to be similar in functionality and usability to the already popular wallet solutions. For example, MobilePay is expected to launch a contactless payment solution based on instant payments in Denmark in 2025 that can be used across smartphones, see box 13.

However, a challenge for the adoption of mobile payment solutions based on instant payments may be that they do not necessarily offer a significant improvement in usability, convenience or necessarily the same consumer protection compared to the existing and already widely used wallet solutions based on card payments. This can reduce the incentive for consumers to switch from the payment solutions they already use unless other benefits are offered at the same time.

BOX 13

**MobilePay is expected to launch contactless instant mobile payments in physical stores in Denmark in 2025**

As a result of Apple's decision to allow third-party providers access to the NFC technology in iPhones following the European Commission's investigation, it is now possible for other payment solutions to utilise the contactless payment functionality on Apple iPhones. This has so far only been possible with Android-based smartphones.

Based on this, MobilePay plans to introduce contactless mobile payments in Denmark during 2025, in collaboration with banks, which are primarily based on credit transfers, specifically instant payments. This means that payments to merchants with MobilePay will be completed as an instant payment from the payer's bank account to a dedicated retailer account with MobilePay.<sup>1</sup>

MobilePay will use the same underlying payment infrastructure for future contactless mobile payments that is currently used for in-store payments with QR codes. According to MobilePay, the use of credit transfers instead of card payments will make the contactless mobile payment solution more cost-effective. This enables the transaction fee that merchants pay for accepting payments with MobilePay to be competitive with the merchant service charge for the price regulated Dankort.

<sup>1</sup> Danish citizens are also expected to be able to use their payment cards through MobilePay's contactless mobile payment solution. It also enables payments abroad where merchants do not have a payment agreement with MobilePay.

**International focus on the adoption of instant payments in Europe**

The adoption of instant payments is a political focus in Europe, as they are seen as an important element of the future payment infrastructure. The European Central Bank, ECB, has highlighted instant payments as a crucial tool for ensuring fast, secure, and efficient payments in its revised retail payments strategy. It also emphasises that pan-European payment solutions, such as those based on instant payments, can compete with card and wallet solutions. The ECB also emphasises the importance of making instant payments widely available across EU Member States to support a single European payments market. In addition, the ECB notes that this can support its goal of reducing dependence on global payment providers.<sup>62</sup>

Sveriges Riksbank has also stated that greater use of instant payments can contribute to increased efficiency in the payment system. This is partly because fewer players and systems are involved in the actual payment and merchants have immediate access to liquidity.<sup>63</sup>

In Sweden, instant payments are already being used with the Swish payment solution. However, Sveriges Riksbank emphasises the importance of continuing the adoption of instant payments, as this, among other things, will also help to promote competition between different payment solutions.

<sup>62</sup> See European Central Bank, The Eurosystem's retail payments strategy – priorities for 2024 and beyond ([link](#)).

<sup>63</sup> See Sveriges Riksbank, Payment Report 2024 ([link](#)).

# 08

## Appendix

TABLE A1

### The merchant service charge for Dankort in physical commerce depends on the transaction volume of the business

Price group	1	2	3	4	5	6	7	8	9	10
Minimum number of transactions per year	-	500	5,000	10,000	25,000	50,000	100,000	200,000	400,000	800,000
Transaction fee (per cent)	0.50	0.45	0.35	0.25	0.22	0.22	0.20	0.20	0.17	0.17

Note: Prices only cover Dankort in physical and serviced retail commerce. The merchant service charge in self-service vending machines, such as petrol stations or online shopping, are not subject to regulation and amount to kr. 0.50 and 0.32 per cent of the transaction amount respectively, regardless of turnover. Nets also offers a fixed price model where merchants pay a fixed monthly subscription price, which is financially favourable if the payee has an annual Dankort turnover above kr. 750,000 and an average transaction above kr. 300. The percentage pricing model is most favourable for most merchants.

Source: Nets, Dankort.dk.

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