The competitive landscape for payments: a European perspective

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Acronyms

Acronym	Description
ACH	automated clearing house
ACPR	Autorité de Contrôle Prudentiel et de Résolution
AISP	account information service provider
API	application programming interface
APP	authorised push payments
ATM	automated teller machine (cash dispenser)
CCP	central counterparty clearing
CSD	central securities depositories
CB	Cartes Bancaires
CNPS	Comité National des Paiements Scripturaux
DE	Germany
ECB	European Central Bank
EEA	European Economic Area
EMV	originally, Europay Mastercard Visa. Now used to designate the technical standard for cards known as 'chip and PIN cards'
EMVco	corporation responsible for the EMV standards
EU	European Union
FCA	Financial Conduct Authority
FR	France
GDP	gross domestic product
GIE	Groupement d'Intérêt Economique
IFR	Interchange Fee Regulation
IoT	Internet of things
mPOS	mobile point of sale
MSC	merchant service charge
NFC	near-field communication
P2P	peer-to-peer
PIN	personal identification number
PISP	payment initiation service provider
POS	point of sale (includes bricks-and-mortar and online merchants)
PSD2	second Payment Services Directive
PSP	payment service provider
PSR	Payment Service Regulator
QR code	quick response code
SEPA	Singe European Payment Area
TIPS	TARGET Instant Payment Settlement
UK	United Kingdom

Source: Oxera.

Definitions

Concept	Definition
Co-badged cards	Payment cards that include two or more payment brands (or schemes).
Credit transfer	Payment initiated by the payer. The payer sends a payment instruction to their payment service provider (PSP), e.g. bank. The payer's PSP moves the funds to the payee's PSP. Also referred to as a bank transfer.
Digital wallets	An electronic device or online service that allows a user to make electronic transactions. They can be linked to the users' bank or card details.
Direct debit	Transfer initiated by the payee via their PSP. Direct debits are often used for recurring payments and require pre-authorisation from the payer.
Four-party card scheme	The payment scheme involves four parties: the cardholder, the merchant, the issuer (the cardholder's PSP), and the acquirer (the merchant's PSP). The scheme rules set out the terms of dealing between the issuer and the acquirer. Examples include Visa and Mastercard.
Interbank payments or processing	Payments processing infrastructure that banks are connected to and which is typically used for credit transfers and direct debits. Also referred to as automated clearing houses (ACH)
Interchange fee	In four-party card schemes, a fee paid by the bank serving the payer (the acquiring bank) to the bank that issued the card to the customer (the issuing bank).
Merchant Service Charge (MSC)	Fee for debit or credit card transactions or acceptance that merchants negotiate with their acquirer.
Multi-homing	Users associating with more than one competing platform in a two-sided market. Examples include consumers carrying credit cards from multiple bank accounts, or using more than one operating system on a computer.
Retail payment	Purchases made by a consumer at a merchant, which may be a physical store or an e-commerce site.
Three-party card scheme	The card scheme consists of three parties: a cardholder, a merchant and a joint issuer and acquirer (sometimes called the franchisee). In the case of three-party schemes, the payment scheme provides the issuing and acquiring services itself. There is no competition within the brand; rather, the competition is with other brands. Examples include American Express and Discover Card.

Source: Oxera.

1 Introduction

1.1 Scope and objectives of this report

The competitive landscape for retail payments in Europe is going through a period of considerable upheaval due to technological change and entry by new providers, supported by regulatory changes. To gain a better understanding of these changes and consider their implications for market outcomes such as quality, choice and prices in retail payments, Oxera was commissioned by Mastercard to analyse this 'competitive landscape'.

Our analysis covers three broad areas:

- the current market for retail payments in Europe, including an introduction to the economics of networks and how payment methods compete, and the types of payment methods active in this market;
- what these economic considerations are likely to imply for market outcomes and the competitive dynamics between different methods and service providers, both at present and in the future;
- how these factors are shaping the market for retail payments in France, Germany, Italy and the UK.

The focus is on purchases made by a consumer at a merchant, which may be a physical store or an e-commerce site. Business-to-business payments are not considered, and interpersonal payments between individual consumers are considered only to the extent there is an interaction with retail payments. Our analysis focuses on the EEA and is based on an economic evaluation of evidence and case studies, with sources clearly cited throughout.

1.2 Key findings

The central conclusions of our analysis are as follows.

- **Technological and regulatory trends are reshaping the payment landscape by increasing access to interbank infrastructures**. Technological, market and regulatory developments are significantly reducing barriers to entry and changing the way competition works in this market. New technology has increased the importance of e-commerce. Payment methods using the interbank infrastructure have become viable alternatives for such transactions, and they are already widely used in a number of EEA member states in place of cards (albeit with different product features as a result of their functionality and cost). The second Payment Services Directive (PSD2) reduced the costs of new payment service providers accessing this interbank processing infrastructure, increasing its accessibility. Common and openly available technology standards have enabled new providers to enter the payments industry. Furthermore, changes in technology and consumer preferences—particularly the growth of mobile payments—are now blurring the boundary between physical (in-store) and online payments, making interbank payments a viable method for in-store payments too.
- **The role of network effects in retail payments is often misunderstood**. Network effects are a central feature of any electronic payment product. Understanding these effects is therefore crucial to understanding competitive dynamics in payments. Success of both existing providers and

new entrants comes from building traction in the customer base on both sides of a transaction.

The historical narrative that has sometimes been applied to the retail payments market is that it is divided between card schemes on the one hand and legacy payment methods on the other, with network effects within card schemes inhibiting new entry and limiting the bargaining power of users. In the modern retail payments market, such network effects also provide a competitive advantage helping the new entrants to succeed. Therefore, competition can flourish in the presence of strong network effects.

- **New entry into the EEA retail payments market is possible and common in practice**. Entry can be achieved in a number of ways. For example, the increasing tendency of consumers to have access to more than one payment method (multi-homing) means that new interbank payment apps can be used and accepted alongside cards. Economies of scope allow organisations with existing customer bases in other sectors (large merchants, social networks or mobile platforms) to enter the payments market. Other firms with large acceptance networks originally developed for international travellers (e.g. China UnionPay, WeChatPay and AliPay) are able to leverage these networks to provide new payment options to EEA consumers as well. The growth rates experienced by new entrants suggest that they are capable of achieving considerable scale.
- **The competitive dynamics are enhancing competition on the acceptance side of the market**. The overall trend in market power is away from payment schemes (be they card or interbank) and towards new services that can: (i) access multiple schemes; and (ii) influence which scheme a customer chooses for their payment. The increased use of 'e-wallets' provides an example of this. By owning the customer relationship, e-wallets may steer payments to whichever method is more attractive (for example, lowest-cost) for the e-wallet provider, increasing direct competition between payment methods and driving down acceptance costs for all merchants. The same dynamics mean that large merchants will increasingly be able to negotiate bespoke deals with payment service providers at preferential terms in return for steering their customers towards those providers, resulting in an overall trend of increasing competition on the acceptance side of the market.
- **The retail payments market is delivering good outcomes for consumers and merchants in terms of choice, quality, price and innovation**. Driven by competitive pressure, international payment schemes such as Mastercard and Visa have been key in developing innovative new payment methods such as contactless and tokenisation. This delivers a number of market benefits—for example, through the efficiencies generated by the large-scale shift from cash to contactless options for in-store payments. Consumers and merchants have an increasing choice of payment methods at a range of price points reflecting differences in quality and consumer convenience. For example, payment methods that come with more consumer protection (e.g. against fraud or lack of delivery by the merchant) or functionality (e.g. providing credit access) tend to come with higher fees too. New technologies (such as mobile point of sale (mPOS), PIN on glass, and tap on phone) have further reduced the costs to merchants. These outcomes are in line with a well-functioning market.

1.3 Structure of report

The findings of each section are set out in detail at the start of each section in the report.

- Section 2 explains the economics of how competition works in industries with strong network effects and applies this to the retail payments market.
- Section 3 describes the trends that are reshaping the payments market in terms of technology, regulation, and consumer preferences.
- Section 4 gives an overview of the usage of payment methods in Europe, describing the methods available in the current market. It also explores some of the different service providers currently competing in the EEA.
- Section 5 describes the market outcomes in retail payments in terms of choice, quality, innovation and price, and how these are evolving.
- Section 6 considers the competitive dynamics between different payment providers, focusing on how these are likely to shape the market in future.
- Sections 7–10 present four detailed case studies, exploring how the above factors are shaping the market for retail payments in France, Germany, Italy and the UK.

2 Economics of payment systems

2.1 Introduction and key messages

- Retail payment systems exhibit two-sided network effects. Customers want a system with wide merchant participation, while merchants want a system with wide customer participation.
- Industries with network effects are often characterised as tending towards high levels of concentration, as large firms can leverage the advantage of their larger user bases.
- However, many network industries have economic features such as multi-homing (i.e. users having access to more than one network) or interoperable platforms that allow for sustained competition between networks. The prevalence of multi-homing on both the consumer side and the merchant side of the market means that payment systems fit into this category.
- In dynamic markets characterised by competing networks, market shares are unlikely to be a reliable measure of the extent of competition. Instead, new entry, new products, improved quality and reach of payment services and pricing will be better indicators of competition.

This section is structured as follows.

- Section 2.2 provides a working definition of a payment system for the purpose of this report.
- In section 2.3, we use this definition to set out the economic characteristics of payment systems, with a focus on network effects.
- In section 2.4, we explain how networks compete in practice and why network effects do not necessarily lead to uncompetitive outcomes.
- Section 2.5 combines the findings of the two previous sections, and explains why sustainable competition is likely in the payment systems market.
- Section 2.6 concludes.

2.2 What is a payment system?

Payment systems enable funds to be transferred between two or more parties. They involve a number of participants and generally consist of a set of rules for a transaction (including technical standards), and the infrastructure that is used to process the transaction. For the system to be useful in practice, it will usually include provisions to allow convenient access, prevent fraud, and ensure operational resilience.

There are many possible payment systems. These range from the ancient use of cocoa beans as a currency in Mesoamerica[1] (infrastructure), with a shared understanding of the value of those beans (rules), through to modern four-party card schemes (which have both scheme rules and processing infrastructure, with regulatory separation in the EU), to cryptocurrencies assigning value to particular mathematical constructs (rules) and operating with a ledger

[1] Baron, J.P. (2018), 'Making money in Mesoamerica: Currency production and procurement in the Classic Maya financial system', *Economic Anthropology*, 5:2, May.

distributed across thousands of servers (infrastructure). Cash is a payment system based on a physical infrastructure of coins and notes, with rules set by a government or group of governments.

In modern society, nearly all economic transactions rely on a payment system of some kind. Payers and payees typically have a choice of systems, with the most practical one being influenced by the nature of the transaction itself. For example, the ideal system for buying a house is typically different to that for buying a video game. For the payment to go ahead, both payer and payee need to agree on a suitable system. All these features mean that competition between payment systems is unlike competition in any other market.

In this report, our focus is on **retail payment systems**—i.e. systems allowing for payments between retail businesses and their customers. The features these systems as an economic good are explored in this section, together with their implications for the competitive process in the payments market.

2.3 Economic characteristics of payment systems

For the purposes of this discussion, payment systems as economic goods exhibit three main economic features:

- two-sided network effects between payers and payees;
- economies of scale;
- economies of scope.

The first is the most crucial in understanding the economics of payments, and is therefore the focus of this section.

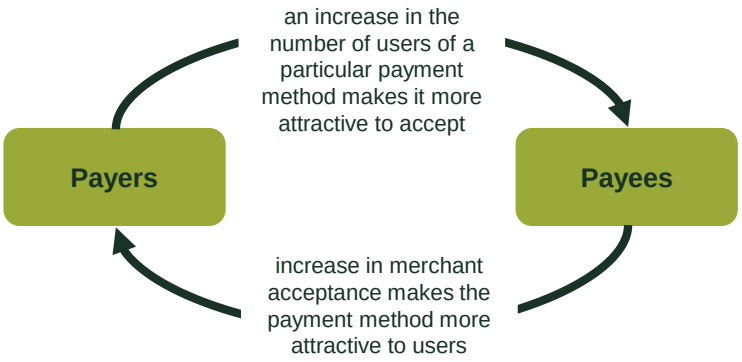
2.3.1 Two-sided network effects

Payment systems bring together payers and payees and as such are two-sided markets serving two distinct types of user. Two-sided markets can be distinguished in two ways.

(i) Participation on two sides

Payment systems bring together consumers who are able to make a payment, and retailers and other types of recipients who adopt the means to accept payment. Payees want to be able to accept payment with a system that payers are able to use; similarly, payers want to have access to systems that payees typically accept. This means that the attractiveness of participating in a payment system is a function of the level of participation on the other side of the market—a ‘network externality’.

Figure 2.1 Network effects in payments



Source: Oxera.

(ii) Interaction between two sides

Payment systems enable transactions between payers and payees to take place. The decision to interact necessarily implies a joint decision of the two parties, although typically a payer does not consider the costs and benefits of a selected system to the payee, nor vice versa. Thus, there are also usage externalities in the decision of which payment system to use; a payer's choice will result in costs and benefits to the payee. These externalities may be asymmetric in nature.

This situation arises in both old and new two-sided platforms, and can lead to skewed pricing structures. For example, placing adverts in a newspaper is desirable for advertisers, but not necessarily for its readers. For this reason, in order to align incentives, some newspapers are free of charge to readers, and make their revenue from advertisers. Free distribution maximises readership, making it attractive to advertisers.[2] This pricing structure has been a topic of debate in the context of payment card schemes, as explained in Box 2.1.

Box 2.1 Two-sided network effects for retail payment methods

Cards are an important method of payment. For this reason, we explain in more detail how two-sided market dynamics apply to competition between payment card schemes.

Two-sided platforms, card schemes included, have the objective of setting prices to maximise usage of the platform. New platforms set prices in this way to achieve a critical mass of users. Existing platforms set the pricing structure to remain attractive in the face of competition from rival platforms. From an economics perspective, such output-enhancing pricing practices are inherently procompetitive. In a well-functioning market, suppliers are expected to try to gain market share from their rivals by making themselves attractive to customers.

In the case of retail payment schemes, it is the consumers, rather than the merchants, who choose which payment method to use when transacting. Consumers typically have a low willingness to pay because they have a variety of options to use—including cash—for which they do not pay any transaction fees. Merchants value the payments that consumers make and

[2] An example of a newspaper changing its pricing strategy is the *London Evening Standard*. In 2009, it removed its 50p cover price and became free of charge, funded by advertising—a move by which it expected to double its circulation. See *The Guardian* (2009), 'London Evening Standard to go free', 2 October.

are therefore typically more willing to pay than consumers in order to ensure that the consumers are able to use their preferred payment method when transacting.[1]

Payment cards compete not only among themselves but also with other payment methods for consumers to hold and use their payment method. This could be by having a better service offering, or through lower prices and/or incentives. The focus of the competition on attracting consumers first reflects the lower willingness to pay of the user.

As a result, the growth of retail payment methods does not depend solely on the 'level' of any given fee, but on getting the right balance of fees on both sides of the market. These demand dynamics mean that providers of retail payment products have an incentive to charge more on the merchant side than on the cardholder (consumer) side, in order to promote scheme growth and compete more effectively with other retail payment methods. This type of skewed pricing structure is common in many two-sided markets.

From the perspective of the cardholder and the merchant, this incentive is the same whether the payment card is in a three-party scheme (such as Amex's proprietary model) or a four-party scheme[2] (such as Mastercard, Visa, China UnionPay, or Amex's GNS model). On the supply side, however, the three-party structure differs. In such a scheme, the provider can itself achieve the skewed pricing structure by charging more to merchants than to cardholders in order to maximise usage of the scheme. [3] On the other hand, four-party schemes may bring together separate issuers and acquirers, and must therefore use a transfer fee (referred to as an 'interchange fee') to achieve the same skewed pricing structure.

Note: [1] That the balance of value is this way around is also evident from the fact that card schemes in Europe (and outside Europe) apply a positive interchange fees, showing that the profit-maximising interchange fee (i.e. the one most effectively aligned with willingness to pay), places more cost on the merchant side.[2] Four-party card schemes operate by bringing together acquirers (banks and non-banks, which service the merchant) and issuers (banks and non-banks, which serve the cardholder) to make the payment possible. [3] The European Commission has recognised on several occasions that there is an 'implicit' interchange fee—i.e. a transfer from the acquiring arm of the business to the issuing arm of the business. See, for example, *American Express v The Lord Commissioners of Her Majesty's Treasury*, para. 7.28.

Source: Oxera.

2.3.2 Economies of scale

Economies of scale occur because fixed costs do not vary with the number of units. Thus, all else unchanged, as the number of units increases, the average cost per unit decreases.[3] With respect to payment systems, the fixed costs of setting up the system (i.e. the scheme and processing infrastructure) are usually high relative to the variable cost of processing an additional transaction. As such, the more transactions a supplier processes, the lower the cost per transaction.

Such economies of scale typically reward size: having more transactions leads to more efficiency, which in turn leads to greater competitive strength.[4] This

[3] Niels, G., Jenkins, H. and Kavanagh, J. (2016), *Economics for Competition Lawyers,* 2nd edn, Oxford University Press, section 1.4.6.
[4] The more transactions a payment system processes, the lower the average cost per transaction. This makes the system more attractive to users, which in turn further increases volumes and reduces the average cost per transaction.

can act as a barrier to entry for smaller providers and may lead to a more concentrated market.

In payment systems, as in most markets, economies of scale may have a limit after which diseconomies of scale start to become more important. This could include, for example, the challenges of extending a currency across multiple countries when this expands the scope of a currency beyond its optimal currency area.[5]

Moreover, the extent to which scale economies act as a barrier to entry in practice depends on the extent of such scale economies (lower fixed or upfront costs reduce their importance) and the dynamics of two-sided competition in the market. For example, technological developments have reduced the costs of developing payment systems over time, lowering the barriers to entry for new competition.

2.3.3 Economies of scope

Economies of scope arise where it is cheaper to produce a range of products from a common cost base.[6] For example, if a bank sets up a credit-scoring facility to assess the creditworthiness of potential customers, it can use this facility to supply a wide range of loan products, including credit cards, overdrafts, and personal loans. Economies of scope can also be enhanced by consumer convenience benefits and the ability to cross-sell. An example is telecoms providers offering media services, or gas retailers offering boiler maintenance services.

Regarding payment systems, if a supplier performs one activity within payments (e.g. card processing), the cost of performing another activity may be lower. This is because the infrastructure, personnel, and servers can be used for multiple purposes. Historically, such synergies have been centred on different types of payment product; for example, card schemes providing consumer cards will typically be well placed to provide commercial cards as well.

2.3.4 Utility-based view of network competition

The economic principles identified in this section show how the presence of network effects can lead to relatively concentrated markets and act as a barrier to entry. This is because of the positive feedback effect whereby the value of the network increases as the network grows in size, thereby further encouraging growth, which raises the value further.

In some markets, such network effects, combined with significant economies of scale, can even lead to natural monopolies, where a single provider emerges. Fixed line telecoms networks are an example, and nearly all EU countries have a single ‘last mile’ network linking homes to telephone exchanges in any given area. Although various networks offer telecoms and broadband services through access arrangements to this network, any attempt to set up a competing network based on similar technology would not be economically viable. Any small-scale network would be uncompetitive on cost and less able to attract new customers due to its partial coverage. Other examples of ‘network monopolies’ include electricity transmission and water supply. The likelihood of monopoly outcomes in these natural monopoly networks means

[5] Mundell, R. A. (1961), ‘A theory of optimum currency areas’, *American Economic Review*, **51**:4, pp. 657–65.
[6] Niels, G., Jenkins, H. and Kavanagh, J. (2016), *Economics for Competition Lawyers: 2nd edition*, Oxford University Press, section 3.51.

that they are usually owned or run by the state or parts of the network are regulated.

This utility-based view of network competition has been influential when considering competition between payment systems. From this view, these network effects have resulted in very high entry barriers and limited the number of providers in the market for retail payment services. A review of the retail payment and banking services sector in early 2000 put it as follows:[7]

> Network effects also have profound implications for competition, efficiency and innovation in markets where they arise. Establishing critical mass is the first hurdle, as the benefits to customers and businesses of a network arise only gradually with increasing use. It is possible to envisage a world in which electronic cash is widely held and used, for example, but much harder to see how to get there.
>
> Once a network is well established, it can be extremely difficult to create a new network in direct competition. The established network holds two key advantages. First, customers faced with a choice will usually prefer to use the larger network, other things being equal. Second, many end users will already own or use equipment connected to the existing network. Customers carry particular cards in their wallets, for example, and firms have invested in systems that enable them to accept particular forms of payment. To compete, a new network supplier must either replicate this equipment or gain access to this existing installed base of infrastructure.

Moreover, the market has historically been characterised as being divided between 'cards' on the one hand and 'legacy' payment methods (such as credit transfers) on the other, with limited substitutability between the two. For example, the European Commission noted in 2007:[8]

> The mere fact that cash, cheques and card share the common characteristic of allowing consumers to access funds held in bank accounts does not, in itself, provide sufficient evidence for a substitutability, because this functional interchangeability is only limited […] bank giro services and bank transfers are designed for situations where the creditor and the drawee are not in direct contact with one another ('distance payments'). Thus they are not substitutable with over the counter payment means such as payment cards.

In such a setting of a segmented payments market and strong network effects, witnessing new providers entering the market and becoming successful would be considered unrealistic due to the challenges of:

- creating a big enough customer base—on both the payer and payee side;
- developing or accessing the infrastructure for processing transactions, which are subject to economies of scale and come with their own network effects;
- developing and rolling out (or gaining access to) technology—in particular to connect to merchants.

Almost 20 years later, this traditional view is still sometimes expressed as a forecast that the payments market will inevitably tend to become more concentrated as competitive forces favour the largest providers in the market.[9] These network effects are still a relevant economic characteristic of payment

[7] Cruickshank, D. (2000), 'Competition in UK Banking: A report to the Chancellor of the Exchequer', March.
[8] European Commission (2007), 'Prohibition decision, Case 34579 MasterCard I', 19 December, paras 312–314.
[9] See, for example, Which? (2018), 'Response to the HMT Call for evidence on "Cash and digital payments in the new economy"', June.

methods. However, Oxera's analysis in this report shows that such a view is misconceived when considering the likely evolution of the retail payments market, both as a matter of economic principle and in its practical characterisation of the choices available on both sides of the market. In the following section, we explain the principles of network competition in general and show that network effects lead to monopoly and a lack of competition only in certain situations; in others, highly competitive outcomes can be delivered.

2.4 How do networks compete?

2.4.1 General features of network competition

The way in which organisations (including networks) compete will differ according to the features of the market. In some cases, price will be the most important determinant of competition where goods are relatively homogenous. However, where firms have differentiated products, quality can play an equally important role.

In general, the extent of barriers to entry and exit will have a profound impact on how competition works in practice. For instance, in a perfectly contestable market where there are no barriers to entry and exit, an incumbent firm is incentivised to follow a strategy of working to maintain competitive prices in order to deter entry.[10] Although a perfectly contestable market is a theoretical ideal, a key insight is that falling barriers to entry can be associated with increased competitive pressure on incumbent firms, even if market shares are stable.

Another important general feature of competition between networks is the possibility of a 'tipping point'. Consider an example of a credit card incumbent and a challenger offering a payment method using bank transfers, such as MobilePay in Denmark.[11] In a situation where the credit card proposition became less attractive than a bank transfer-based payment method, the cardholder might quickly switch to using the alternative method. As this makes accepting the payment method more attractive to merchants, they will increase adoption. However, this in turn makes the method more attractive to the cardholder, and therefore more cardholders will switch, resulting in an upward spiral for the challenger and what is sometimes called a 'death spiral' for the incumbent.

In short, in two-sided markets, ensuring sufficient growth to achieve a critical mass on one side of the market, combined with a small competitive advantage, can quickly result in more widespread shifts in market share.

Despite the possibility of 'tipping points' arising in certain situations, an empirical observation is that various types of network industry do appear to support several or many competing networks. In mobile telephony, competition is sustained between different cellular networks, and handset operating systems, despite strong network effects and scale economies. In payment systems, the overall competitive picture is that multiple card networks have

[10] A contestable market, originally described by economist William Baumol, is one characterised by free entry and exit. Challenger firms have the option of a 'hit-and-run' strategy should the incumbent firms ever have a product offering that is uncompetitive. Aware of this threat, incumbent firms are therefore incentivised to follow a strategy of working to maintain prices and quality standards at a competitive level in order to deter this entry. See Baumol, W. J. (1982), 'Contestable Markets: An Uprising in the Theory of Industry Structure', *The American Economic Review*, **72**:1, pp. 1–15.

[11] A bank transfer-based payment method involves consumers paying for goods using their online banking facility to initiate a credit transfer. This method enables retailers to be notified of payment immediately, providing certainty that their account will be credited with the agreed amount and enabling retailers to immediately dispatch the products. This method is explored further in section 4.

operated alongside each other in Europe along with several rival payment methods. In other words, the fact that an industry exhibits network effects does not in itself mean that the market cannot sustain multiple providers, as has been well documented in the academic literature.[12]

2.4.2 Types of network

The previous section illustrates an important economic principle: whether network industries tend towards highly concentrated markets depends crucially on the nature of the network effects being considered. In particular, it matters whether:

- networks are one- or two-sided—as described above, platforms with two distinct user groups that provide each other with positive network effects are two-sided;
- there are large benefits to universal reach—in some industries, there is a high level of demand for users to reach every other potential user in the market;
- there is a central record—for some networks to operate, there must be a record that stores information of ownership of the goods traded in the network.

When the latter two effects are present, more concentrated or monopolistic market outcomes tend to result in at least some parts of the network.

For example, for a postal service to be useful, it must be possible for a user to send a letter wherever they like (termed 'universal reach'). Therefore, without regulatory intervention in the market, smaller postal networks would not be able to compete with an established player that already has such reach.

Universal reach is partly driven by consumer expectations. For example, when using a mobile phone network, consumers would expect to be able to reach anyone else that has a mobile phone irrespective of the type of network used by other consumers. Similarly, in the case of credit transfers, universal reach is an important characteristic—consumers would expect to be able to transfer money to anyone with a bank account and a bank would unlikely be successful if it could only send credit transfers to a subset of all banks in a country (or the world). On the other hand, in the case of debit and credit cards, universal reach is not required—a payment card product can be successful even if only some consumers hold it or some merchants accept it—consumers and merchants can always switch to another payment method.

The need for a central information repository also tends to favour all transactions going through a single platform. Consider, for example, the case of land registries, where separate registries offering disjointed or even misaligned records of ownership would lead to substantial inefficiencies.

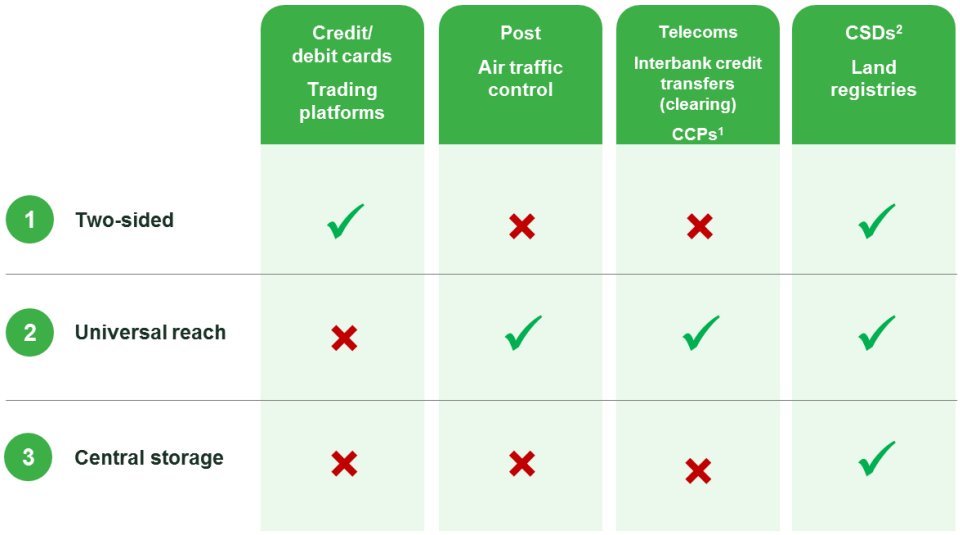
Where universal reach and central storage are not important, the economic literature suggests that competition between network firms is possible and in practice common for both one- and two-sided networks.[13] Real-world examples of such industries, such as the market for homes through real estate agents

[12] Armstrong, M. (2006), 'Competition in Two-Sided Markets', *The Rand Journal of Economics*, **37**:3, Autumn, pp. 668–691.
[13] See, for example, Suleymanova, I. and Wey, C. (2008), 'Bertrand Competition in Markets with Network Effects and Switching Costs', DIW Berlin Discussion Paper No. 796, May.

and the market for video game consoles, are characterised by significant levels of competition.[14]

Various combinations of network features and examples are summarised in Figure 2.2 below.

Figure 2.2 Networks with different economic features



Note: [1] Central counterparty (CCP) clearing for equity clearing. Clearing houses are financial organisations that facilitate trades in securities markets. A CCP becomes the counterparty to the buyer and the seller carries the credit risk if one party defaults on the agreement. [2] Central securities depositories (CSDs) are financial organisations that hold securities such as shares to allow ownership to be transferred without the need for physical transfer of certificates.

Source: Oxera.

Even where the structure of the market as a whole is of a form that would tend to lead to monopoly (for example, as a result of the importance of 'universal reach'), particular forms of industry practice or regulatory remedies can still result in markets that support competition. In the next section, we discuss the examples of interoperability, multi-homing and unbundling. As will become clear throughout this report, multi-homing is a particularly important consideration in the retail payments market, and it is examined in more detail below.

2.4.3 Interoperability and common standards

Interoperability and the application of common standards can have a significant impact on market outcomes. Take email, for example. It is essential that the user of an email service is able to contact any email address they choose, regardless of the email provider they are using. On the face of it, one might suppose that this would result in a tendency towards everyone using the same email service. However, in practice, due to the existence of a common standard for email—which means that all email services are **interoperable** (i.e. emails from difference services, say Gmail and Outlook, can be easily exchanged)—email services are highly competitive.

The effect of such interoperability is to ensure that network effects apply to the system and not to individual firms providing access to that system. The popular nature of email makes it an attractive mode of communication, and, as such, network effects apply. However, because a small email provider still gives the

[14] See, for example, Armstrong (2006), op. cit.; and Financial Conduct Authority (2015), 'Credit Card Market Study: Interim Report', November.

user access to the whole system, these network effects do not lead to a competitive disadvantage. In the case of cards, interoperability is facilitated through the development of common and open standards, such as those developed by EMVCo[15], and through regulation. With support from banks, processors, merchants and other industry stakeholders, EMVCo manages and develops the EMV specifications and related testing to ensure interoperability and acceptance of secure payments.[16] These standards are published and available to all free of charge, enabling adoption by any participant.

Other examples of sectors with interoperability that supports competition include mobile telephony (where every network is built to an agreed standard that allows interoperability) and CCP clearing houses in Europe (where traders using different CCPs can clear securities (equities) through an interoperability link between their CCPs).[17]

2.4.4 Economies of scale and unbundling

Economies of scale are an important determinant of market outcomes in nearly all markets. A water network, for example, requires neither universal reach nor a central information repository, but it will tend towards a monopolistic outcome due to the prohibitive costs of connecting a household to an alternative network. Providing a small town with access to a water network is a substantial infrastructure investment. Mobile phone networks, on the other hand, have less extreme scale economies, and competing networks can operate in the same area. Coverage for the same small town can be achieved with the construction of a single mast.

Where substantial economies of scale preclude competition in one part of the market, this need not preclude competition in the market as a whole. In fixed-line telecoms, for example, economies of scale may preclude multiple competing networks being connected to people's homes (the 'last mile'). However, **unbundling** that part of the service from the core network, and providing access to the last mile on an equivalent basis, allows for competition across the rest of the network.

Moreover, these considerations are not fixed over time. In some markets, technological progress has significantly reduced the costs of developing the required infrastructure. This has facilitated entry and resulted in competition between multiple providers. Examples include the trading and clearing of securities—whereas 20 years ago most countries had only one stock exchange, now in several countries there are multiple trading platforms competing against each other.[18]

[15] EMVCo exists to facilitate worldwide interoperability and acceptance of secure payment transactions. It accomplishes this by managing and evolving the EMV® Specifications and related testing processes. See https://www.emvco.com/about/overview/

[16] For example, EMVCo is the creator of the standard EMV 3DS (also known as 3DS2), which constitutes the backbone of authentication for remote transactions (and which will be used to support the Regulatory Technical Standards (RTS) of PSD2 on strong customer authentication (SCA).

[17] See Oxera and Barnes, R. (2010), 'Counterparty clearing house user choice: an evolving European landscape', *Agenda*, March.

[18] See Oxera (2011), 'Monitoring prices, costs and volumes of trading and post-trading services', report prepared for European Commission, DG Internal Market and Services, May; Oxera (2011), 'Securities trading and post-trading in the EU: what impact has competition had?', *Agenda*, May; Niels, G., Barnes, F. and Dijk, R. van (2003), 'Unclear and Unsettled: The Debate on Competition in Clearing and Settlement of Securities Trades', *European Competition Law Review*, **24**:12, pp. 634–9; Van Dijk, R. and Correia da Silva, L. (2012), 'Competition: the Costs and Benefits', *The Financial Times*, October 2; Oxera (2011), 'Securities trading and post-trading in the EU: what impact has competition had?', *Agenda*, May.

2.4.5 Multi-homing

A user who joins only one network is said to 'single-home', whereas someone who joins more than one network is said to 'multi-home'. Widescale multi-homing can increase competition between platforms. If two parties want to make an exchange, and require a platform to do so, the platform is placed in a powerful position where it is the only one that is accessible to both sides. In practice, however, the parties might multi-home.

Consider online marketplaces; a seller might list a product for sale on Amazon, where a buyer sees it and wants to make a purchase. However, this does not result in significant market power to Amazon if the good is also listed on eBay. As both platforms are accessible to the buyer, the buyer can easily check both options and select the better deal. Multi-homing ensures that network effects enjoyed by one platform do not preclude other platforms benefiting from the same network effects. In the previous example, two competing marketplaces can benefit from large user bases that will include many of the same people.

In general, the literature suggests that the following factors can determine the extent of multi-homing on either side of the market.[19]

- **The extent of multi-homing on the other side of the market**—if one side of the market (e.g. sellers) chooses to single-home, the other side of the market will be likely to multi-home in order to look across multiple platforms (e.g. buyers looking to get access to all the sellers). The same holds in reverse. For example, if all energy suppliers are available on all price comparison websites (PCWs), there is less incentive for customers to use multiple PCWs.
- **The extent of platform differentiation**—if networks are horizontally differentiated (the platforms have different product offerings), multi-homing is more likely. Many users will have social media accounts with both Facebook and LinkedIn since the two networks have very different product offerings.
- **The costs of joining the platform**—if the costs of joining a platform are high, users are more likely to single-home. If, however, they are much lower for one type of user than for another type, one would expect the former to multi-home and the latter to single-home. For example, as a smartphone is a high-value purchase, most users will purchase either an Android or an iOS-based device. App developers, on the other hand, usually develop apps for both operating systems, as the costs of doing so are low relative to the benefits.

As noted, multi-homing is an important determinant of competition in two-sided networks. A strong preference for single-homing on both sides, for example, tends to lead to 'winner-takes-all' outcomes, as participants on both sides eventually settle on a single commonly preferred platform.

In general, platforms compete more intensely for the side of the market which has more single-homing. In simple terms, this is because acquiring a user who single-homes means that the user is exclusive to that platform, and thus more valuable; consider the premium paid by video platforms to be able to host content exclusively. By attracting users on the single-homing side of the market, the platform gains market power on the other side of the market. As

[19] See, for example, Evans, D. and Schmalensee, R. (2005), 'The industrial organization of markets with two-sided platforms', NBER Working Paper No. 11603, September.

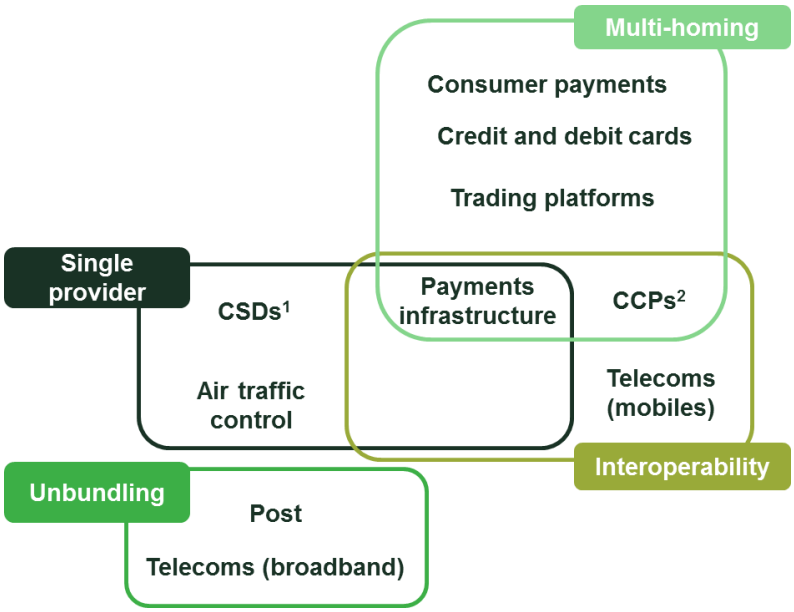
the single-homing side of the market is the side on which platforms compete most closely, it is also the one that is likely to result in lower platform fees to its users.[20]

Multi-homing on both sides of the market means that a platform is competitively constrained on both sides of the market by the presence alternative, competing platforms. Any attempt to increase prices, for example, on either side of the market would be met with users migrating to rival platforms. Markets with multi-homing user bases on both sides of the market are therefore likely to be competitive and less likely to trend to a single large provider .[21]

2.4.6 Summary—models of competition

Figure 2.3 summarises how some of these competition models have arisen in different industries.

Figure 2.3 Models of comparison in network industries can differ considerably



Note: [1] CSDs are financial organisations that hold securities such as shares to allow ownership to be transferred without the need for physical transfer of certificates. [2] CCP are financial organisations that facilitate trades in securities markets. A CCP becomes the counterparty to the buyer and the seller carries the credit risk if one party defaults on the agreement.

Source: Oxera.

As illustrated in Figure 2.3, multi-homing is an important factor in the economics of payment systems. We examine why in more detail in the following section.

2.5 Implications for competition between payment methods

The economic factors set out in the preceding section explain why payment systems exist in network industries but are nevertheless able to support

[20] This says nothing about platform prices overall, but rather about the relative prices on the two sides of the market. While the single-homing side is likely to benefit from lower prices through competition, the (relatively) multi-homing side is likely to experience higher prices due to the platform exercising its market power.
[21] Growth in accessing one network is possible without being at the expense of access to another network, thereby breaking the winner-takes-all dynamic that can apply in markets where single-homing is prevalent on both sides.

sustainable competition. These are explained in more detail in this report, but some key themes can be identified first.[22]

In the market for retail payment methods, multiple providers compete with each other for two key reasons. First, multi-homing on both sides of the market is common in payment systems, and increasingly so. In physical stores, merchants usually accept cash as well as a range of electronic payment methods (such as cards and digital wallets), while a typical consumer also has access to both cash and a card and often has access to other electronic payment methods (including digital wallets on mobile phones and other cards) as well. Online, the range of options for electronic payment already extends beyond cards to include methods such as PayPal, Trustly, Sofort or other services that make use of bank transfers. The use of smartphones has made multi-homing extremely easy for consumers—the only thing required is downloading the relevant app and signing up. The extent of such 'two-sided multi-homing' is likely to further increase due to regulatory developments under PSD2. This Directive makes payments using interbank schemes possible for retail payments facilitated by payment initiation service providers (PISPs), which are able to enter the market at low cost. Therefore, nearly all consumers could multi-home for retail transactions as they have access to at least one card and a current account, so they could make a payment using an interbank scheme initiated by a PISP, or a card scheme.

Where one payment method offers substantial mutual advantages to merchants and customers when compared to rival payment methods, this widespread multi-homing can be expected to facilitate rapid switching to that payment method.

Second, regulatory and technical developments are tending to reduce economies of scale in the market. New entrants such as PayPal and Klarna have been successful in building their own systems, whereas PSD2 makes it possible for new entrants to set up their own payment method using interbank infrastructure at relatively low cost.

There are important interactions with economies of scope in this respect. In a digital economy, economies of scope can become much wider than offering different types of payment method. Consider the growth of peer-to-peer (P2P) payment networks, where the technical infrastructure and associated data of a social network uses—and benefits from—the provision of an associated payment method. Technology also allows merchants that would not historically have experienced any scope economies by offering a payment method to do so, as they are able to cross-sell effectively to a loyal user base and potentially benefit from the data generated by these users. Large merchants around the world, such as Amazon, are starting to follow this strategy.[23]

[22] Considerations of 'universal reach' and 'central storage' do not usually apply to retail payments, although there are some nuances to this. For cash within a particular country, the concept of 'legal tender' has some commonalities with universal reach. For interbank payments such as credit transfers, universal reach is important, in that every bank needs to be able to send a payment to every other bank, which may result in a single system for a given type of payment within a country (or may require multi-homing or interoperability for different networks to coexist and compete). This has historically resulted in challenges to certain types of innovation due to the need to coordinate any changes across all scheme participants. See Oxera (2014), 'Money-go-round: insights into the economics and regulation of payment systems', *Agenda*, May. Traditionally, many countries have one single infrastructure for credit transfers and direct debits. Some countries or currency areas (e.g. the eurozone) have multiple infrastructures with interoperability agreements or multi-homing by banks.

[23] More information on these examples is set out in section 5.

2.6 This report: assessing competition

This section has explained that retail payment systems are characterised by:

- two-sided network effects;
- extensive multi-homing on both sides facilitating fast switching;
- low and falling costs of entry to new providers and established ones in other markets;
- falling economies of scale.

This report now assesses the competitive process by analysing the ways in which providers compete for the customer base (acceptance by merchants and holding by consumers) and for the use of payment methods at the POS (online and physical), new entry, and their growth and impact on incumbent providers. Aware of the risk of entry, incumbent payment platforms will need to compete on quality, innovation and pricing in order to maintain market share, thereby creating competitive outcomes in the payments market without necessarily significant volatility in market share. We therefore also assess competition by looking at market outcomes in terms of choice, quality, price and innovation.

3 Trends reshaping payments

3.1 Introduction and key messages

- The payments market has changed significantly in recent years owing to changes in technology, regulation and consumer preferences.
- Previously, customers chose mainly between card and cash, but now they can pay by several different methods, and have the means to assess which is the best option given their circumstances .
- Many of these payment methods are increasingly blurring the lines between in-store and online payments.

This section is structured as follows.

- Section 3.2 sets out what payment systems are and how they generate value in an economy.
- In section 3.3, we outline the value chain of traditional payments.
- Section 3.4 explains how changes in technology, regulation and consumer preferences have affected the payments market.
- Section 3.5 shows how these changes have led to a change in the payments value chain.

3.2 What role do payment systems play in the modern economy?

Payment systems are a fundamental part of the financial infrastructure and crucial to the functioning of all modern economies.[24] The length of modern integrated supply chains and the number of intermediate transactions mean that the scale of payments in any economy far exceeds the overall value of any economy itself. Payments are therefore complementary services, integrated in the functioning of all industries, and any incremental improvement in payments has an outsized contribution to make to the economy as a whole. Many different organisations have evolved to deliver different types of payment, and different aspects of the payment service.

Nevertheless, for payment systems to contribute effectively to the functioning of an economy, they need to:

- reduce payment frictions—this includes activities that optimise customer usability and payment convenience;
- ensure security and stability—this includes activities that ensure the resilience of a payment network;
- drive innovation—this includes activities around promoting the adoption of new technologies;
- remove of barriers to entry—this includes activities such as open protocols and standards that help new providers enter the payments industry and other markets;

[24] See, for example, Hasan, I., De Renzis, T. and Schmiedel, H. (2013), 'Retail Payments and the Real Economy', European Central Bank Working Paper Series No. 1572, August; Moody's Analytics (2016), 'The Impact of Electronic Payments on Economic Growth', February.

- create wider social benefits: this includes activities that provide social benefits, such as support financial inclusion and supporting public sector objectives.

As explained in more detail in the value chains described in section 3.3 and 3.5, the various aspects of payment methods are delivered by a range of organisations. The organisations involved also vary by payment method. For example, with cash, paper money can be transferred between customer and merchant without the direct use of an intermediary. However, this is possible only due to the actions of central banks that print the money and engage in a range of fraud prevention activities. On the other hand, electronic payment methods such as cards rely on a partnership between schemes, processing infrastructure and (bank and non-bank) issuers and acquirers.

The number and types of participant in the payments value chain can be important for how competition works in the market.

3.3 Traditional payments value chain

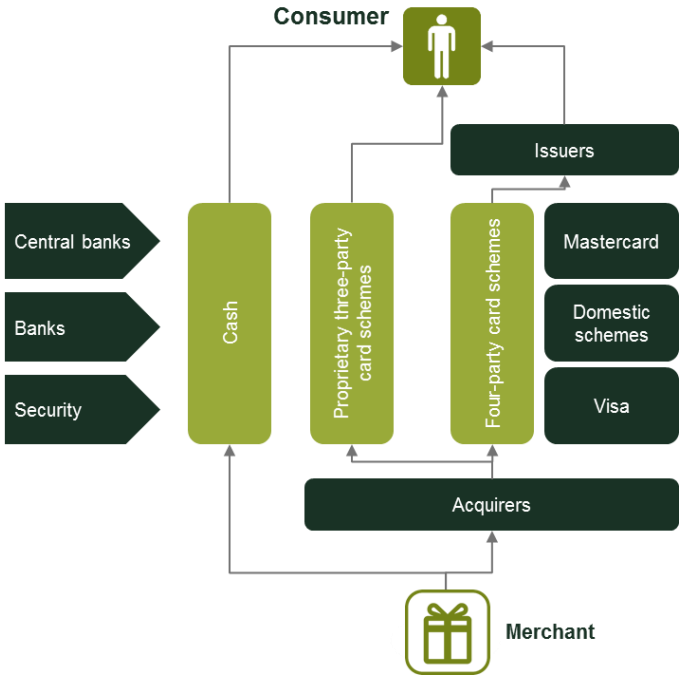
The activities of a payment system are undertaken by different parties in the value chain. Figure 3.1 below depicts the more traditional payment systems value chain, where a consumer could use cash to pay for a transaction or they could use a card.[25] As noted above, when a customer pays in cash, a direct intermediary is not required although a central bank will print the money and undertake fraud prevention activities.

Although, from the customer's perspective, a transaction may be the same whether using a proprietary three-party card scheme such as American Express cards or a four-party card scheme such as Mastercard or Visa, the structures of the value chain are different. With a four-party card scheme, the customer pays a certain amount and this payment is then verified and authorised by the issuing bank (i.e. the customer's bank). The issuing bank then transfers the funds to the acquiring bank (i.e. the merchant's bank), which then credits the merchant's account. A three-party card scheme differs to a four-party scheme in that the roles of issuer and potentially the acquirer are integrated into the scheme.[26]

Although not included in Figure 3.1 for reasons of brevity, customers can also pay for transactions by cheque. While the use of cheques has been declining and is negligible in most EU countries, it is still a valid method of payment in some countries (for example, in France, as described in section 7).

[25] These illustrate providers acting within the payments landscape for non-repeated transactions only (i.e. no direct debits or standing orders).
[26] The distinction between the two types of card scheme is not always clear-cut, as illustrated by the fact that American Express GNS was found to be a four-party card scheme by the European Court of Justice, while this scheme's proprietary cards are considered to be a three-party scheme. See European Court of Justice (2018), *American Express Company v The Lords Commissioners of Her Majesty's Treasury*, Judgment of 7 February 2018, Case C-304/16.

Figure 3.1 Value chain of a traditional retail payment system



Note: This value chain is illustrative.

Source: Oxera.

As discussed in section 3.2, for payments to add value to the economy, the payment method needs to move money in a secure, timely and convenient way. The entities shown in Figure 3.1 will offer services to ensure that the payment method is secure, timely and convenient; however, there are other parties, not shown in Figure 3.1, that help to ensure the timely, secure and convenient exchange of a card payment. These include:

- **card manufacturers,** which provide the physical support for card-based payment methods;
- **acquiring processing**, which involves establishing connectivity to merchant terminals, POS authorisation, and the routing of payments to central and issuing processing;
- **terminal providers**, which provide merchants with terminals;
- **gateway services**, which direct messages from payment terminals to acquiring processors, for both in-store and online transactions. These services may also 'translate' transaction messages from one messaging standard to another, enabling messages to be processed by multiple types of infrastructure and facilitating multi-homing.

3.4 Developments in technology, regulation and consumer preferences

This payments value chain has evolved in recent years as a result of changes in technology, regulation and consumer preferences, as explained in more detail below.

3.4.1 Developments in technology

Technological change—in particular, the rise of e-commerce and mobile payments—has had a significant impact on the payments industry.

Rise of e-commerce

The e-commerce market is growing rapidly, with European e-commerce growing to €534bn in 2017 and predicted to grow by 13% to €602bn in 2018. This represents a near doubling of the e-commerce market from €307bn in 2013.[27] The UK remains the largest e-commerce market, with e-commerce turnover of $225bn in 2018, although both France and Germany have considerable e-commerce markets, at $109bn and $97bn in 2018 respectively.[28] E-commerce is projected to grow significantly in the coming years, with an annual growth to 2022 of 9% in the UK, 10% in Germany, 8% in France, 14% in the Netherlands, 10% in Spain, and 9% in Sweden, for example.[29] This means that it is likely to become even more important in the payments landscape and an even more important sales channel for merchants.

Payment methods using the interbank infrastructure are already viable for e-commerce payments in some areas (in Germany and the Netherlands, for example). The growth of e-commerce therefore is increasing the strength of such methods as an alternative to cards, especially in cases where some cards are not enabled for e-commerce, (such as Maestro or V-pay in certain geographies).

Rise of mobile payments

A key trend emerging within payments is the increasing use of mobile payments technology, both for in-store payments, where both parties are in the same physical location, and for remote payments, which can be completed irrespective of the payer's location. This has been facilitated by the high penetration of mobile phones in Europe.

Although the first instance of a mobile payment occurred in 1997,[30] there has been a significant rise in the development and adoption of mobile payment systems in recent years. In 2011, Google launched Google Wallet, making it the first large company to provide a mobile wallet, which allowed consumers to make payments, earn loyalty points, and redeem coupons. In 2012, Apple introduced Passbook to be used for buying boarding passes and airline tickets. Apple Pay was launched in 2014, and Android Pay and Samsung Pay followed a year later.[31] In addition, the rise of Alipay and WeChat to serve inbound Chinese tourists also contributes to the growth of mobile payments in Europe.[32]

The rise of mobile payments has been facilitated by major technological developments such as near-field communication (NFC) and the use of quick response (QR) codes, which are explained in more detail below.[33]

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[27] Internet Retailing (2018), 'European online sales grew by 11% in 2017, with still faster growth expected in 2018', 2 July.
[28] WorldPay (2018), 'Global Payment Report', November.
[29] Ibid.
[30] In 1997, Coca Cola introduced vending machines in Helsinki that allowed consumers to buy the drink through a text message, making it the world's first instance of a mobile payment transaction. See Prime Indexes, 'White Paper: Mobile Payments Industry Overview'.
[31] Ibid.
[32] See section 6.5.2 for more details.
[33] In Sweden, Finland and Denmark, Bluetooth-based payment methods have also been developed (enabled by technologies such as Bluetooth Low Energy (BLE)). In 2013, PayPal also launched a Bluetooth-enabled mobile payment solution, PayPal Beacon. This method did not prove successful; see Evans, M (2018), 'PayPal Steals Page Out of Old Playbook With iZettle Acquisition', *Forbes*, 18 May.

- **NFC**. NFC technology allows users to wave an NFC-enabled phone or their wearable device over an NFC-compatible payment reader or card machine and transfer data without the devices touching each other. Transactions do not require the cardholder to enter a PIN. This is in contrast to contactless card payments, which require a PIN for transactions above a certain amount; therefore the benefits of NFC to consumers include convenience and speed. This is the technology used by payment methods such as Apple Pay and Google Pay.
- **QR code**. The QR code is a more advanced type of barcode read by digital devices that are equipped with a camera, such as smartphones. The QR code can be generated by the merchant or by the customer's smartphone ('merchant-presented QR' or 'customer-presented QR'). For example, in the former case, for every transaction, a seller presents the QR code, which contains the relevant payment information, to enable its customer to make a payment. The customer scans the code using an installed mobile application, and the amount is then deducted from the customer's digital wallet.

NFC and QR code payment methods each have their relative advantages. NFC technology tends to be considered as more secure and more intuitive to consumers.[34]

The rise of mobile payments means that customers can pay by card without carrying a physical card and allows customers to carry, and switch between, multiple payment methods and brands easily through their digital wallets. Mobile payments have also facilitated the development of services that combine or integrate payments with other types of app (e.g. spending trackers).

Technological developments and the rise of new payment methods

The rise of e-commerce and mobile payments has been accompanied by an increase in the number of payment service providers and payment options. A number of banks have launched a number of new payment methods, such as Swish in Sweden, Payconiq in the Benelux countries, and MobilePay in Denmark. In addition, these technological developments have allowed non-banking entities, such as telecoms operators, technology companies, and smartphone manufacturers, to impose competitive constraints on the more traditional payment infrastructures described in section 3.3.

New technology such as NFC and QR codes means that various online payment methods and e-wallets have become available for purchases on the high street. Furthermore, some merchants have integrated the delivery of their service with the payment method, which blurs the distinction between remote and in-store payments. For example, the Uber app can be used for both ordering a taxi and paying for the taxi journey.[35] Similarly, the Starbucks app can be used for ordering and paying for a coffee.[36] In both scenarios, although technically the payment may be considered a remote transaction, it competes with methods (such as cash or cards) used for in-store payments.

Finally, with technological developments, the Internet of Things (IoT), and the development of wearable devices (such as smartwatches) and home devices

[34] For example, see BlueBite (2018), 'QR vs NFC', accessed 28 February.
[35] For more detail, see https://www.uber.com/en-GB/about/how-does-uber-work/.
[36] For more detail, see https://www.starbucks.co.uk/coffeehouse/mobile-apps/mystarbucks.

(e.g. washing machines) represent areas of significant change and innovation for retail payments. This is discussed further in section 6.6.

Instant payments

Many countries, including the UK, Denmark, and Sweden, have developed payment systems that facilitate real-time payments between banks.[37] In addition to these country-specific schemes, SEPA Instant Credit Transfer (SCT Inst) Scheme, officially launched in 2017, enables euro credit transfers with the funds made available on the account in less than ten seconds at any time in an area that will span over 34 European countries.[38] SCT Inst has been joined by 2,024 payment service providers from 16 European countries, accounting for c. 50% of European PSPs.[39]

This development has enabled further innovation, with the advent of new retail payment methods that allow consumers to conduct payments without the need for credit or debit cards.[40] For instance, in the UK, PaybyBank is a payment method that uses the UK's infrastructure for Faster Payment Service,[41] and in Sweden, Swish, a joint venture between six of the country's major banks, allows customers and firms to send and receive funds in real time using the existing credit transfer infrastructure.[42] Such services are described in more detail in section 4.

3.4.2 Recent regulatory developments

The technological developments have been accompanied and enhanced by significant regulatory development, particularly PSD2, which has helped further facilitate both entry into the market and changes in the payment methods available to customers.

PSD2

PSD2 is an important contributor to the changing nature of the payments landscape across Europe. PSD2 aims to 'open up payment markets to new entrants leading to more competition, greater choice and better prices for consumers'.[43]

It aims to do this by enabling bank customers, both consumers and businesses, to use third-party providers to manage finances and initiate payments on their behalf. Under this regulation, banks are required to provide third-party providers with access to their customers' accounts through open application program interfaces (APIs).

This will lower barriers to entry by reducing the need for active bank participation in a payments service. Instead, by getting direct access to a customer's account, third-party providers are able to build services on top of a bank's existing data and infrastructure. This is because banks are required to treat payment initiation services from authorised third-party providers as equivalent to those initiated by customers themselves:

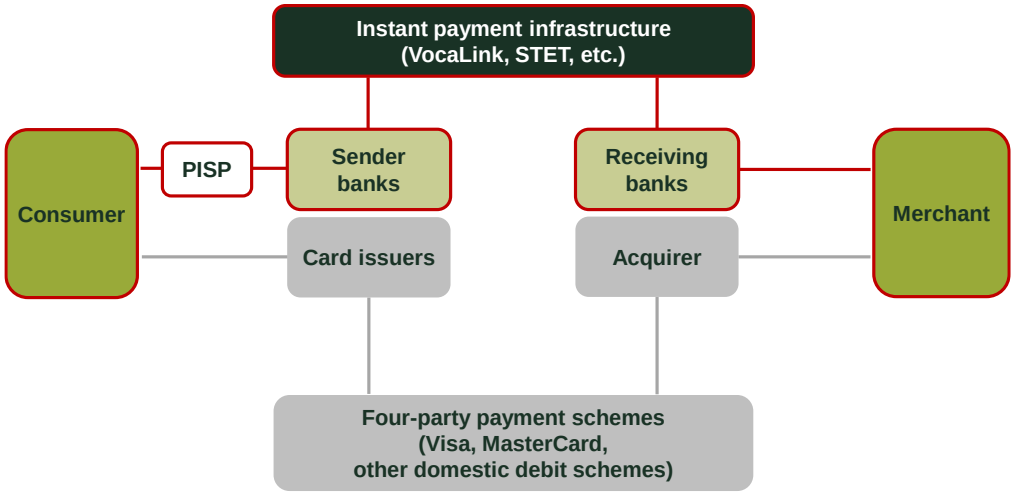
[37] Vocalink (2016), 'A global history of payments', 26 August.
[38] European Payments Council (2018), 'SEPA Instant Credit Transfer rulebook and implementation guidelines'.
[39] European Payments Council (2018), 'SEPA Instant Credit Transfer'.
[40] BNY Mellon (2015), 'Innovation in Payments: The Future is Fintech'.
[41] For more detail, see https://www.vocalink.com/mobile-payments/zapp/.
[42] For more detail, see https://www.getswish.se/om-swish/.
[43] European Commission (2017), 'Revised rules for payment services in the EU: Summary of Directive (EU) 2015/2366 on EU-wide payment services'.

> The account servicing payment service provider shall treat payment orders transmitted through the services of a payment initiation service provider without any discrimination other than for objective reasons, in particular in terms of timing, priority or charges vis-à-vis payment orders transmitted directly by the payer.[44]

In practice, this means that if the customer is able to check their account balance and make an interbank payment for free, then a third-party provider can also access these services for free.

Figure 3.2 shows both the card and interbank infrastructure. PSD2 enables PISPs to provide an alternative route to merchants, indicated by the red outline, whereby card infrastructure is bypassed entirely but can instead rely on the receiving/acquirer bank's infrastructure for settlement. This alternative route is particularly important for the competitive analysis of the payments market set out in later sections.

Figure 3.2 Alternative routes of payment



Source: Oxera.

Certain payment product providers have been granted banking licences, which means that they can also act as the acquirer or receiving bank. This means that they no longer need to rely on their banking partners for settlement but can handle it themselves. Adyen, for instance, is a payments processor that has been granted a European banking licence, giving it the status of an acquirer bank.[45] This will help it to process payments nearly instantly rather than relying on banking partners to handle settlements over several days.[46] Similarly, Klarna has been granted a European banking license by the Swedish Financial Supervisory Authority.[47]

Overall, while the rise of e-commerce and mobile payments have made methods based on the interbank infrastructure an increasingly viable alternative to cards, PSD2 is making these payment methods accessible.

[44] Competition and Markets Authority (2016), 'Anticipated acquisition by MasterCard UK Holdco Limited of Vocalink Holdings Limited', January, pp. 45–46.
[45] Reuters (2017), 'Dutch payments processor takes pan-European license to bypass banks', 23 June.
[46] Ibid.
[47] *Financial Times* (2017), 'Swedish fintech leader Klarna wins banking license', 19 June.

Interchange Fee Regulation

As a result of the Interchange Fee Regulation (IFR), domestic and cross-border intra-EEA[48] consumer debit and credit card transactions have a maximum interchange fee of 0.2% and 0.3% respectively. [49]

In addition, the IFR introduced measures aimed at increasing competition in the card payments market.[50]

- **Separation of scheme and infrastructure**. The European Commission enacted the separation of the card scheme and the infrastructure in terms of accounting, organisation and decision-making process. The scheme refers to the payment product (i.e. the rules, standards, and guidelines for the execution of payment transactions), whereas the infrastructure refers to the processing of a payment between the acquirer and the issuers (i.e. the authorisation and clearing).
- **Co-badging of cards and customer choice**. If an issuer offers multiple payment brands on one card (e.g. Visa and Cartes Bancaires in France), the customer can choose which payment brand to use at point-of-sale. Article 8.6 of the Regulation states that payment card schemes, issuers, acquirers and payment card handling infrastructure providers shall not insert automatic mechanisms, software or devices on the payment instrument at the POS that limit the choice of application by the payer when using a co-badged payment instrument. However, they can set up automatic priority selection mechanisms as long as consumers can override this default setting.[51]
- **Restrictions around the 'honour all cards' rule**. Payment schemes and PSPs cannot require a retailer to accept a certain category or brand of card on the basis that they accept another of the payment scheme's/PSP's cards. For instance, merchants accepting a particular payment scheme's consumer debit cards may not be required to also accept the same payment scheme's consumer credit cards.
- **Removal of 'no-steering' rules**. Payment schemes and PSPs cannot prevent retailers from steering customers towards the use of specific payment methods preferred by the retailer.

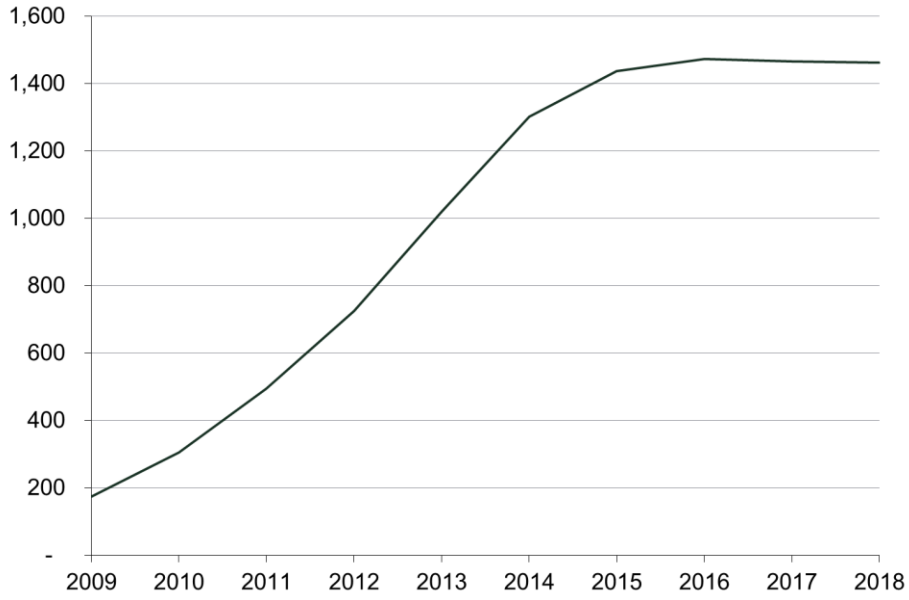
3.4.3 Changes in consumer preferences

Consumers are increasingly using smartphones and apps for various different activities, which has facilitated the growth of innovative payment methods.

As illustrated in Figure 3.3, the global use of smartphones has increased significantly in recent years; the global shipment of smartphones has increased from c. 200m in 2009 to over 1.4bn in 2018. The use of mobile apps has also been growing, as illustrated in Figure 3.4, which shows that mobile app revenues are forecast to grow from $70bn in 2015 to $190bn in 2020.

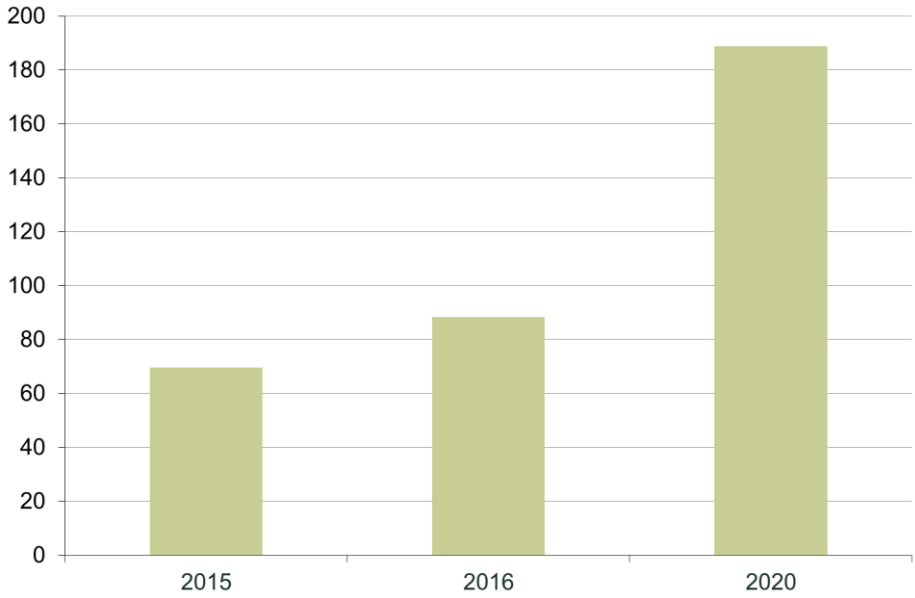
[48] Domestic transactions refer to transactions where the card issuer is located in the same country as the merchant. Cross-border intra-EEA transactions refer to transactions where the card is issued in one country within the EEA and the merchant is located in another country within the EEA.
[49] European Commission (2013), 'Proposal for a regulation of the European Parliament and of the Council on interchange fees for card-based payment transactions', 2013/0265 (COD), 24 July.
[50] Ibid.
[51] 'Regulation (EU) 201/751 of the European Parliament and of the Council of 29 April 2015 on interchange fees for card-based payment transactions', *Official Journal of the European Union*, I. 123/1, 19 May.

Figure 3.3 Global shipment of smartphones (m), 2009–2018



Source: Oxera analysis of Statista data: https://www.statista.com/statistics/271491/worldwide-shipments-of-smartphones-since-2009/.

Figure 3.4 Global mobile app revenues ($bn), 2015–2020



Source: Oxera analysis of Statista data: https://www.statista.com/statistics/269025/worldwide-mobile-app-revenue-forecast/.

The growth in the use of smartphones and apps creates an opportunity for fintech firms to develop innovative payment methods and financial service apps that consumers can access on their smartphones. This growth has, for instance, helped to fuel the development of e-wallet providers (such as PayPal and Amazon Pay), which aggregate different payment methods and allow customers to choose between them, as well as aggregators (such as Mint),[52]

[52] Mint.com organises all accounts in one place but also 'analyses thousands of checking, savings, credit card, brokerage, CD and IRA rollover offers—then make[s] recommendations that could help save you the most based on your lifestyle and goals'. For more detail, see https://www.mint.com/how-mint-works.

which bring together payment methods, bills and bank accounts together on the same platform or app.

In addition, mobile growth has also enabled the rise of connected wearable devices (such as smartwatches). Other types of innovation, such as voice-activated or the IoT, are also likely to drive changes in consumer behaviour.

3.4.4 Ownership and industry trends

When assessing competition in the payments market, it is also relevant to assess the ownership structures of different payment systems. Different ownership structures can result in different incentives, which means the ownership structure can affect market outcomes.[53]

There is variation in the ownership structure of different payment methods as set out below.

- Mastercard and Visa's EU operations are no longer owned by banks.
- Domestic card schemes tend to be owned by banks.
- Certain less traditional payment methods are owned by existing retailers or consumer brands (e.g. Apple Pay and Amazon Pay). Interestingly, although PayPal is now separately listed, it was previously owned by eBay.[54]
- Other new payment methods, such as Klarna,[55] are owned by a group of private investors or companies.

3.5 Current value chain

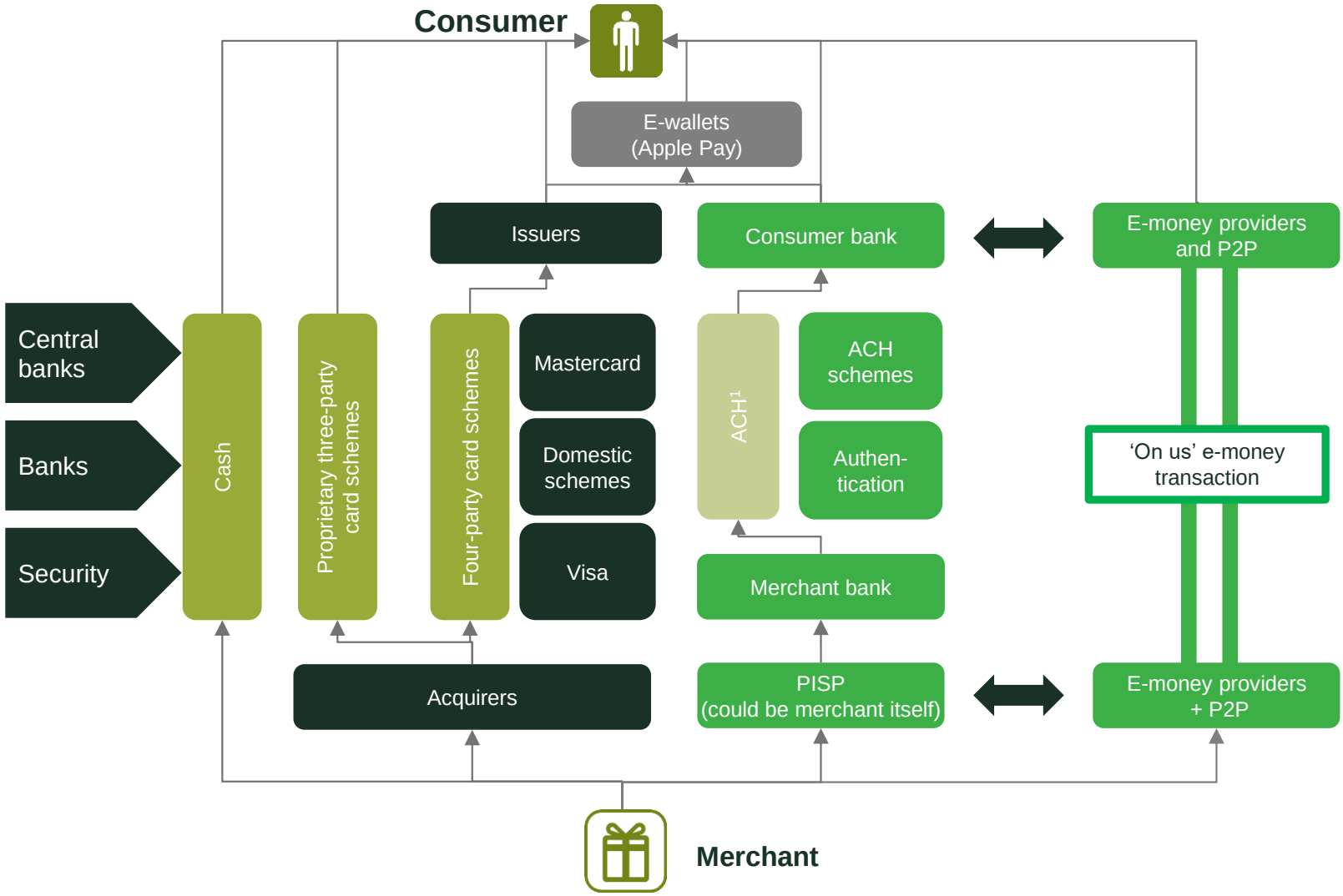
The changes in technology, regulation and consumer preferences noted above have had a significant impact on the payment value chain.

As summarised in Figure 3.5 below, although the customer can still pay by cash or card, the changes noted above mean that there is now a wider range of payment methods available to consumers. The main changes can be summarised as increased intermediation, increased competition, and the development of on-us e-money.

- **Intermediation**: e-wallets may own customer relationship and influence choice of payment.
- **Increased competition**: ACH schemes are a viable option for e-commerce in some member states and will become more accessible across the EEA.
- **'On-us' e-money**: if both payer and payee have an e-money account, the need for external payment processing is removed completely.

[53] For a wider discussion, see Oxera (2015), 'Governance and ownership of payments systems infrastructure', report prepared for Vocalink, November.
[54] CNET (2002), 'eBay picks up PayPal for $1.5bn', 18 August.
[55] Klarna is backed by investors such as Sequoia Capital, Bestseller, Permira, Visa and Atomico. For more detail, see https://www.klarna.com/uk/about-us/.

Figure 3.5 Current value chain of payment system



Notes: [1] The example here shows a payment settled using ACH infrastructure, but other methods are also possible.

Source: Oxera analysis.

4 Retail payment methods—market structure and different types of player

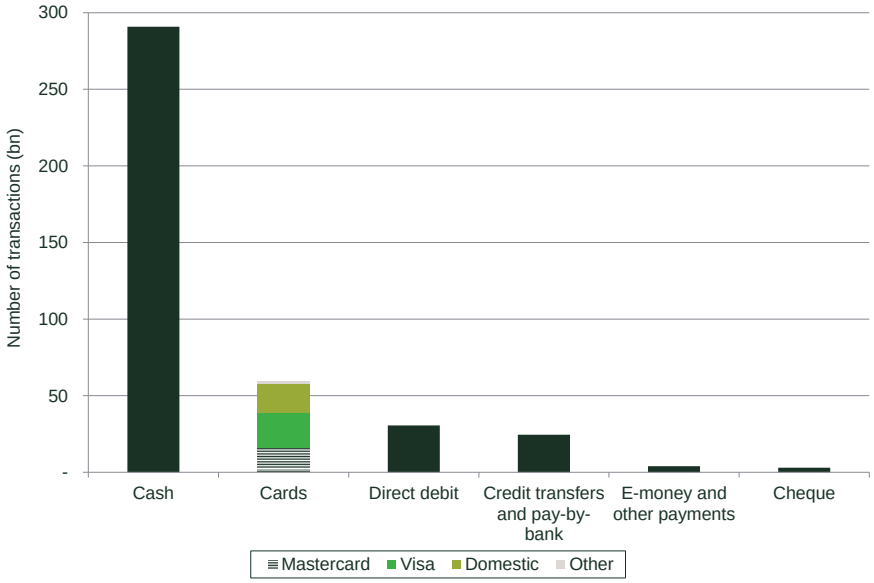
4.1 Introduction and key messages

- Cash is still an important payment method for physical in-store transactions, accounting for 79% of such transaction in the eurozone, although its use is steadily declining across Europe.
- The use of cheques has been declining over time and now has a significant role in only a few countries.
- In some countries, new bank transfer-based payment methods have become popular for online transactions. These payment methods make use of the existing interbank processing infrastructure but come with services such as instant payment notification to the merchant and are therefore convenient for online purchases. For example, iDeal in the Netherlands accounts for 57% of the e-commerce market.
- Cards are an important means of payment in many European countries. Competition exists between card schemes such as Mastercard, Visa, Amex and JCB, and between various domestic schemes. Cards account for 19% of in-store transactions and 51% of online transactions in Europe.
- There are many new entrants into the payments market, particularly for online transactions, making use of new technologies. Different categories of entrants include:
  - large retailers and mobile phone providers, such as Amazon and Apple, that have entered the market by leveraging their existing customer base to introduce digital wallet services;
  - various banks that use their current account customer base and interbank processing infrastructure to enable payments;
  - companies that enter the market by offering a unique customer proposition, such as PayPal and Trustly.
- Technological developments also mean that these online payment methods can increasingly be used for in-store transactions as well—increasingly blurring the lines between physical in-store and online payment methods.
- The advent of PSD2 will promote further entry into the payments market, as well as encouraging the development of new payment methods entirely. PSD2 has enabled and will continue to enable the development of new propositions and business models that build on top of existing interbank payment infrastructures and offer services that link to the same access point that consumers use.

The retail payments landscape in Europe is changing rapidly, driven by new technology and the growth of online transactions. This section provides an overview of the different types of and retail payment methods available to consumers and merchants in Europe.

Figure 4.1 summarises the use of payment methods for both in-store and online payments, showing that cash remains an important method for merchants and consumers for in-store payments.

Figure 4.1 Total number of all EEA retail transactions, by payment method (bn), 2016

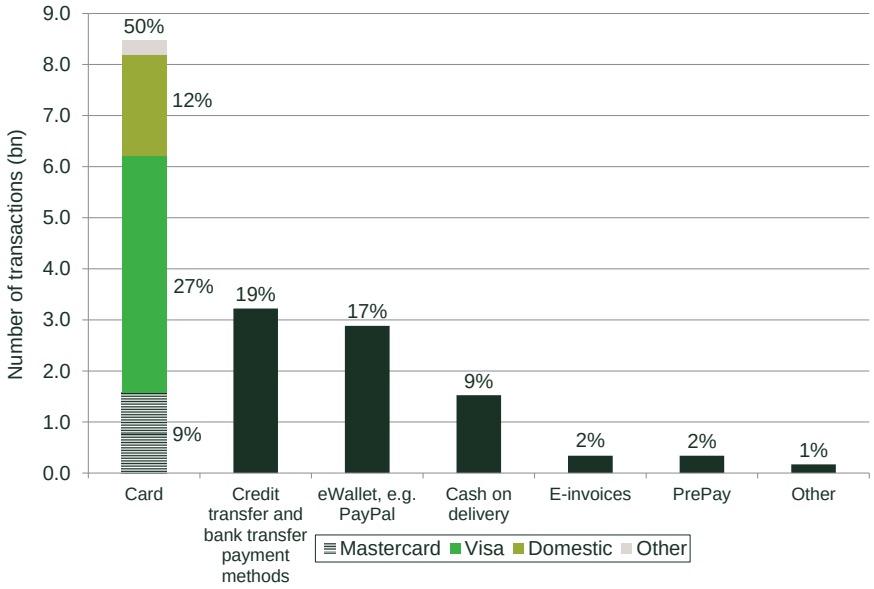


Source: Oxera analysis based on information from RBR (2017), Global payments cards data and forecasts to 2022 data; Pymnts (2017), 'NEW REPORT: Straight Talk About Cash In Europe', Novemberand the European Central Bank (2017), 'Payment statistics for 2016', press release, September.

The use of payment methods for e-commerce is summarised in Figure 4.2, showing that cards offered by domestic and international schemes accounts for around 50% of the number of online transactions, followed by methods using the credit transfer infrastructure, and e-wallets. Domestic cards account for 12% of online transactions, Visa 27%, and Mastercard 9%.[56]

[56] Other schemes, such as Amex, account for 2% of online transactions. Figures based on Oxera analysis of information from RBR (2017), 'Global payments cards data and forecasts to 2022', and Worldpay (2017), 'Global Payment Report'.

Figure 4.2 Total number of EEA retail e-commerce transactions, by payment method (bn), 2016



Note: Payment transactions to merchants. It accounts for providers such as PayPal and Amazon Pay in the e-wallet category. If an e-wallet transaction is made using a card (or the credit transfer infrastructure), this will be reflected in the e-wallet category.

Source: Oxera analysis based on information from RBR (2017), Global payments cards data and forecasts to 2022', and Worldpay (2017), 'Global Payment Report'.

We also explore the channels through which new providers have successfully entered the market, highlighting their entry points, propositions and competitive advantages. Overall, we find that the competitive landscape will continue to change rapidly, creating both opportunities and threats for existing and new market participants.

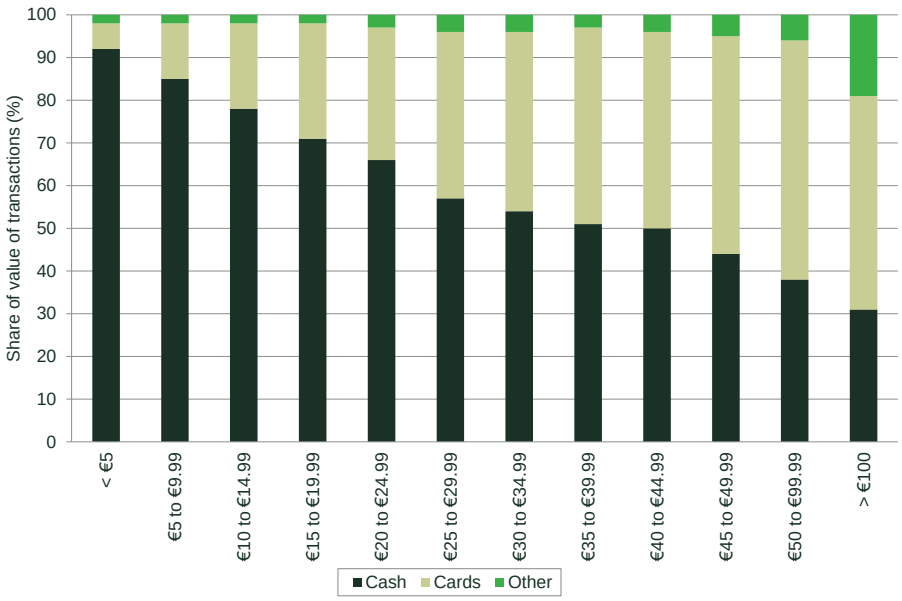
4.2 Cash

The use of cash is declining across Europe, although it remains an important payment choice for merchants and consumers.[57] In 2016, 79% of the number of physical in-store transactions in the eurozone involved cash as the payment method, representing 54% of the value of physical in-store transactions.[58]

This indicates, as shown below in Figure 4.3, that cash is the preferred payment method for lower-value transactions, with cash being used increasingly less as the value of a transaction increases.[59] Cash accounts for over 90% of transactions for values under €5. Similarly, cash accounts for over half of transactions for values of €49.99 and under.

[57] European Central Bank (2018), 'Trends and developments in the use of euro cash over the past ten years'.
[58] Finextra (2017), 'In Europe, cash still dominates at the POS', November.
[59] European Central Bank (2018), op. cit.

Figure 4.3 Use of payment instruments for physical in-store purchases in the eurozone, by value range (%), 2016

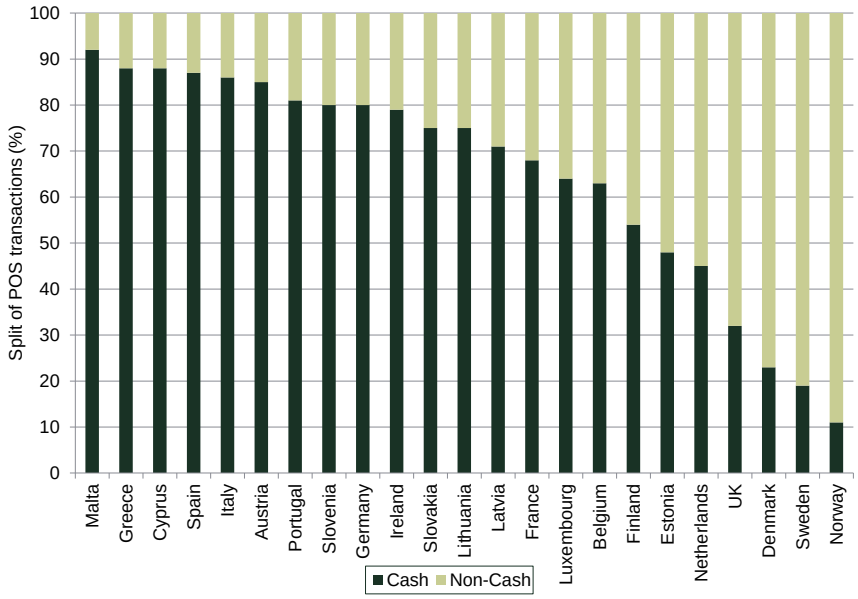


Source: European Central Bank (2018), 'Trends and developments in the use of euro cash over the past ten years'.

The use of cash varies across European countries, as illustrated in Figure 4.4 below. In Malta, Greece and Spain, cash remains a very important payment method, accounting for 92%, 88% and 87% of physical in-store transactions respectively. On the other hand, cash accounts for less than 50% of transactions in Estonia, the Netherlands and the UK, and less than 25% of transactions in Denmark, Sweden and Norway.[60] A continued decline in the use of cash is expected, particularly with the growth of contactless payments, which has increased card usage for smaller-value payments.[61]

[60] Ibid. Statistics for the UK, Denmark, Sweden and Norway are sourced from UK Cards Association (2017), 'UK Card Payments Summary 2016'. Danmarks Nationalbank (2017), 'Danish households opt out of cash payment', December. Jenkins, P. (2018), 'We don't take cash': is this the future of money?', *The Financial Times*, May; Norges Bank Papers (2018), 'Retail payment services 2017', No. 2.
[61] European Central Bank (2018), 'Payment statistics for 2017', press release, 14 September.

Figure 4.4 Cash usage for physical in-store retail payments in Europe (%), 2016



Source: European Central Bank (2018), 'Trends and developments in the use of euro cash over the past ten years'. Statistics for the UK, Denmark, Sweden and Norway are sourced from UK Cards Association (2017), Danmarks Nationalbank (2017), Jenkins (2018), and Norges Bank Papers (2018) respectively.

4.3 Cheque

Cheque usage across Europe has been steadily declining over time. In 2000, cheques were used for just under 10bn transactions, falling to around 3bn in 2016.[62] Cheque usage is most common in Malta, Cyprus and France, where they account for 17%, 12% and 9% of transactions respectively.[63] However, in most other countries, the use of cheques is negligible.

4.4 Credit transfer and direct debit and payment methods using interbank infrastructures

Credit transfers and direct debits are important means of retail payment for consumers in Europe.[64] Typically, these methods are used to pay for utility bills, subscriptions, memberships, and insurance, for example. Direct debit and credit transfers account for 19% and 24% of non-cash retail payments in Europe.[65]

- Historically, credit transfers have not been used for purchases on the Internet due to clearing time and lack of security, among other factors. However, payment methods using the credit transfer infrastructure have become a popular choice in some European markets. For example, in the Netherlands, iDEAL uses the existing infrastructure for credit transfer processing, but unlike traditional credit transfer methods, it enables retailers to be notified of payment immediately, providing certainty that their account will be credited with the agreed amount and enabling retailers to

[62] European Central Bank (2017), 'Payment statistics for 2016', press release, 15 September.
[63] European Central Bank (2018), 'Annex: Relative importance of the main payment instruments in the EU (2017)'.
[64] A credit transfer refers to the transfer of money from one bank account to another, initiated by the payer. A direct debit is a transfer initiated by the payee via his/her payment service provider. Direct debits are often used for recurring payments, such as utility bills. They require a pre-authorisation (or 'mandate') from the payer.
[65] European Central Bank (2018), 'Payment statistics for 2017', press release, 14 September.

immediately dispatch the products. iDEAL now accounts for around 57% of online transactions in the Netherlands.[66]

- In Germany, direct debits are used for physical in-store payments. For example, when customers use their bankcards for payment, the merchants can choose between using the Girocard debit card or the direct debit as the payment method. The latter does not come with a payment guarantee but is typically offered at a lower fee and used by merchants that may know the customers (for example consumers collecting prescribed medicines in pharmacies), have the contact details of the customers or in other situations where the risk is considered low, for example for small-value payments. The interbank processing infrastructure is used to load digital wallets such as PayPal; for example, in Germany, an estimated 80–85% of PayPal and Amazon wallets transactions are funded using credit transfer and direct debit.[67] These digital wallets account for around 52% and 10% of the online payments market in Germany respectively.[68]

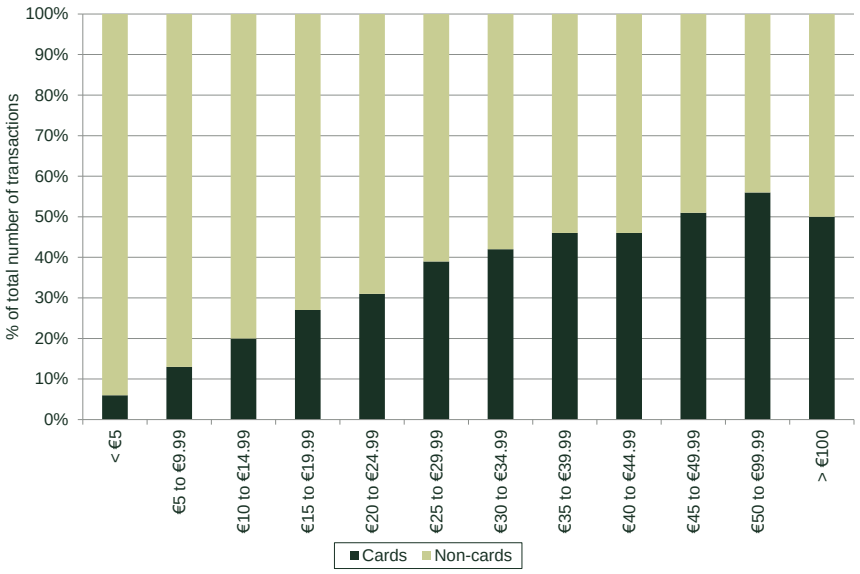
4.5 Cards

Cards are an important means of payment in many European countries. The prevalence and use of cards varies by country, with card penetration highest in the UK and the Nordics, and lowest in Central and Eastern European countries such as Poland and Romania.[69] There is variation in card usage between physical in-store and online transactions: cards account for 19% of physical in-store transactions and 51% of online transactions in Europe.[70]

- For physical transactions, the use of cards varies by transaction amount, as demonstrated in Figure 4.5. This shows that cards are typically used to pay for higher-value transactions, with cards accounting for 50% or more of transactions for amounts greater than €45. However, the growing use of contactless cards across Europe has resulted in cards increasingly competing with cash as the method of payment for low-value transaction amounts.

[66] See iDEAL website, 'iDEAL leading payment method on mobiles'.
[67] See IT Finanzmagazin (2018), 'Die girocard ist vermutlich zu spät – Interview mit Hugo Godschalk, PaySys Consultancy', 19 September.
[68] Bundesbank (2018), 'Payment behaviour in Germany in 2017'.
[69] RBR (2017), 'Global payments cards data and forecasts to 2022'.
[70] Finextra (2017), 'In Europe, cash still dominates at POS', November. Accenture Payments (2016), 'How payments regulation will disrupt and reshape Europe's card payments ecosystem'.

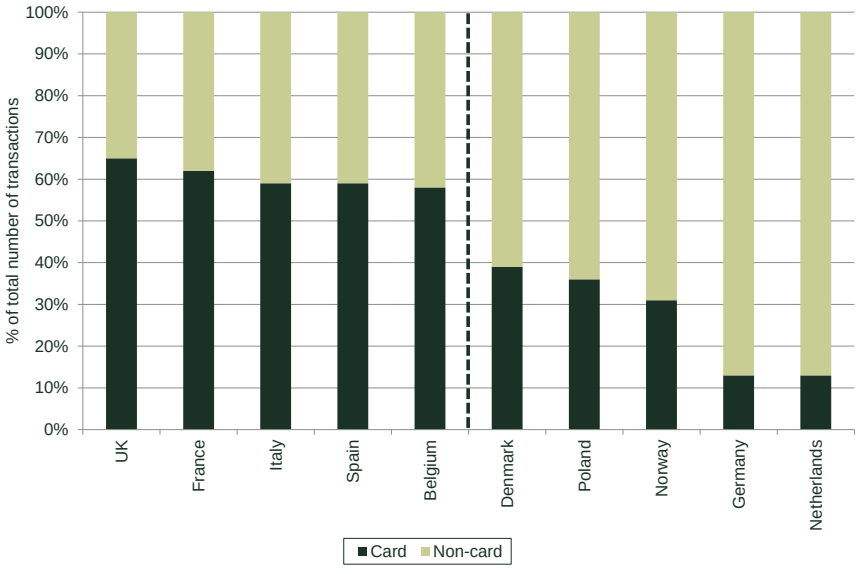
Figure 4.5 Physical in-store transactions by payment amount, eurozone, 2016



Source: European Central Bank (2018), 'Trends and developments in the use of euro cash over the past ten years'.

- Compared with physical transactions, cards account for a larger share of transactions in the e-commerce space. The increase in online shopping, and the changing spending habits of consumers have meant that a smooth and quick process for processing refunds has become increasingly important, with cards facilitating this preference. Figure 4.6 shows the split between card and non-card methods of payments for e-commerce transactions. Countries such as the UK and France have a high use of cards, representing over 60% of transactions. By contrast, cards account for less than 15% of online transactions in the Netherlands and Germany where other methods, such as payment methods using interbank infrastructure and digital wallets, are more popular.

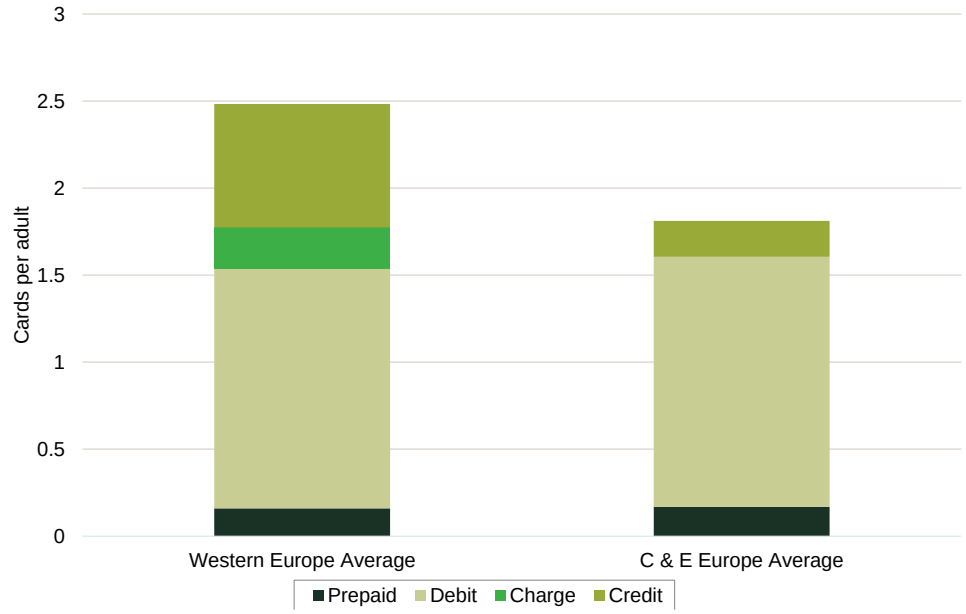
Figure 4.6 Online transactions for a selection of European countries, 2016



Source: Accenture Payments (2016), 'How payments regulation will disrupt and reshape Europe's card payments ecosystem'.

There is considerable variation in the penetration of cards by country.[71] Figure 4.7 shows that, on average, card penetration is higher in Western Europe than in Central and Eastern Europe. The figure also illustrates how the penetration of card type—i.e. whether credit, debit, prepaid or charge—varies between Western Europe and Central and Eastern Europe.

Figure 4.7 Card penetration in Europe, 2017



Note: Co-badged cards are captured as one card in the RBR data.

Source: RBR (2017), 'Global payments cards data and forecasts to 2022'.

- The main players in the cards segment are domestic schemes such as Cartes Bancaires in France, Girocard in Germany and Multibanco in Portugal, and international schemes such as Visa, Mastercard and American Express.
- Domestic debit card schemes are typically owned by local banks. In markets with domestic schemes, almost all bank customers are issued with a domestic debit card by default. In these markets, domestic schemes are typically the most popular payment method, accounting on average for 76% of transactions.[72]
- Domestic card schemes are often co-badged, where the card provides consumers with access to both the domestic and one of the international schemes (Mastercard or Visa). This offers consumers the choice of whether to carry out a transaction using the domestic scheme or international scheme (for domestic payments), and enables the consumer to use the international scheme for cross-border payments.

4.6 Entry by new providers of retail payment methods

Various new players have been successful in entering the markets for retail payments, competing alongside traditional means of payment such as cash

[71] Card penetration is measured by the average number of cards per adult. Note that card penetration differs to card usage. Co-badged cards are recorded as one card (while offering customers access to both the domestic and international scheme).
[72] Oxera analysis based on RBR (2017), 'Global payments cards data and forecasts to 2022'.

and cards. There are different types of entrant with different entry points, propositions and competitive advantages.

- Large retailers have leveraged their existing customer base to introduce new payment methods. For instance, Amazon has created e-wallet services for online payments. Similarly, mobile phone providers like Apple, Google and Samsung have leveraged their existing large user bases and phone technology (near-field communication (NFC)) to enable physical in-store purchases.
- Various banks have used their existing current account customer base and existing interbank-processing infrastructure (Automated Clearing House, ACH) to enable retail payments online. Examples include iDEAL and Payconiq in the Netherlands, Paydirekt and Giropay in Germany, PaybyBank in the UK, MobilePay in Denmark, and Swish in Sweden. Some of these payment methods can now also be used for physical in-store payments (see section 4.10).
- Some providers have also successfully entered the payments market without having an existing customer base. Examples include PayPal, Klarna, Sofort and Trustly, each offering a unique proposition. Sofort and Trustly were two of the first providers to make the existing interbank-processing infrastructure available for online retail payments, while PayPal and Klarna offered unique consumer convenience that appealed to consumers and therefore indirectly also to merchants. PayPal was bought by eBay and became eBay's preferred payment method, further strengthening PayPal's success. eBay has since split from PayPal (finalised in 2015), and from 2020 will start processing payments using Adyen.[73]

The entry of new providers in the payment landscape has resulted in substantial changes in the market, reflected by shifts in market share. For example, PayPal is now used in 52% of e-commerce transactions in Germany,[74] while iDEAL has a 56% market share in e-commerce in the Netherlands,[75] in Sweden Klarna accounts for 73% of digital payments usage, with a 10% market share in e-commerce across Northern Europe.[76] Below, we provide more detail on the payment methods available to consumers, how their usage varies, and the different players involved.

Further, by making use of technological advancements, as outlined in section 3.4.1, the payment methods offered by new entrants will continue to blur the distinction between online and physical in-store purchases. This is explored further in the proceeding sections.

4.7 Entry by providers of payment services using interbank processing infrastructures

Various providers of payment services using interbank processing infrastructures have been successful in entering the market for retail payments. This entails consumers paying for goods using their online banking facility. It works by the provider integrating directly with the online banking systems, rather than providing an electric payment system itself.

[73] Castillo, M. (2018), 'PayPal shares plunge after eBay splits with payment provider in favor of Adyen', CNBC', 31 January.
[74] Bundesbank (2018), 'Payment behaviour in Germany in 2017'.
[75] iDEAL website (2018), 'iDEAL information'.
[76] Klarna website, 'Klarna statistics'.

To carry out a transaction, consumers select their own financial institution from a list of available options and are directed towards their online banking portal or app. After logging in, customers can authorise a pre-completed payment instruction, prompting a transfer of funds from their account to that of the online retailer, making use of the bank's ACH infrastructure. The successful payment status is instantaneously notified to the retailer, which can proceed with providing the product or service immediately. The retailer's account is then credited in line with the normal settlement cycle for credit transfers.

The boxes below provide examples of such payment methods, outlining how the respective payment methods work, as well as information on their service offerings and market shares.

Box 4.1 iDEAL

- Online-banking-based payment solution launched in the Netherlands in 2005.
- Currently the most popular payment method for online transactions in the Netherlands, accounting for 57% of the e-commerce market.
- Supported by the major banks in the Netherlands and accepted by over 100,000 online retailers and other organisations.
- Works by generating a Single Euro Payments Area (SEPA) credit transfer from within the online banking portal of a customer.
- Merchants receive real-time confirmation of payments, unlike traditional credit transfers.
- Essentially a four-party system—acquirers and issuers provide infrastructure that builds on the existing Internet banking infrastructure.
- Retailers pay a per-transaction fee and there is an interchange fee between acquirers and issuers.
- Increasingly being used to pay for online purchases from web-based merchants abroad, and is accepted by web shops in over 60 countries.
- Offers the same level of security as Internet and mobile banking.
- Can now also be used for payments in stores using QR code technology.

Source: iDEAL website, 'iDEAL information'.

Box 4.2 Paydirekt

- Online-banking-based payment method in Germany.
- Launched in 2015 as a joint venture by leading German banks.
- It is an additional function of a current account (rather than a third party).
- The customer registers for Paydirekt via their own bank's online system.
- Based on credit transfers and immediately sends a confirmation of authorisation of the payment to the retailer.

  Payments are made directly through the customer's current account and sent to the merchant's account.
- Paydirekt operates in the consumer-to-business as well as the peer-to-peer payments market.

- Competes with digital wallet providers such as PayPal, which is popular for online transactions in Germany. Paydirekt currently accounts for approximately 2% of e-commerce transactions in Germany.

Source: Paydirekt website, 'paydirekt - das sind wir'. mm1 (2018), 'Paydirekt does not stand a chance against PayPal', February. Bundeskartellamt website, 'Bundeskartellamt has no objection to paydirekt's new payment function'.

Box 4.3 Swish

- Mobile platform online-banking-based payment method in Sweden.
- Launched in 2012 by six local banks as a peer-to-peer credit transfer.
- The method allows users to send money to each other using a mobile number.
- Popular among Swedes:
  - 61% of the population have access to the payment method; 52% use the method frequently (2016), up from 10% in 2014;
  - 5.5m users as at May 2017, just over half of the Swedish population;
- In 2014, Swish was extended to companies and organisations, and has since attracted 110,000 businesses.
- BankID, a means of secure digital identification, has been particularly important in the development and adoption of Swish, and digital products more broadly in Sweden.
- Swish is predominantly used for peer-to-peer payments and is moving into both physical in-store and online markets. The company has also launched a POS terminal solution and has announced plans to enter the e-commerce space, putting the consortium in direct competition with Klarna.

Source: Moody's (2017), 'Vipps and Swish', 16 October.

Box 4.4 Blik

- Polish mobile payments method launched in February 2015.
- Formed by the Polish Payment Standard, a company set up by six Polish banks: Alior Bank, Bank Millennium, Bank Azchodni WBK, mBank, ING Bank and PKO Bank Polski.
- Blik enables consumers to pay with their mobile devices in-store and online, and also enables peer-to-peer transfers.
- The solution is integrated with banking mobile apps and allows users to make payments online and in-store, withdraw cash at ATMs, and enables mobile payments.

Source Ecommerce News (2015), 'Polish banks launch mobile payments solution Blik', 10 February.

4.8 Payment initiators

Third-party payment initiators, such as Sofort and Trustly, entered by using 'screen-scraping' techniques (an automated process whereby data displayed on one site is extracted to be displayed/used on another site) to access their customers' current accounts and use credit transfers to make online payments. Unlike the bank transfer-based payment method, which act as front-ends for a

payment carried out by a bank, these third parties access a customer's bank account using the username and password credentials provided by the customer, initiating a payment on the customer's behalf. The boxes below explore these methods in further detail. Under PSD2, discussed in section 3.4.2, following consent from the customer, these providers can now access current accounts directly and initiate credit transfers more securely using open application program interfaces provided by the bank. In this way, PSD2 seeks to address issues relating to payment initiation services such as confidentiality, liability or security of transactions.[77]

Box 4.5 Sofort

- ACH-based payment solution.
- Acquired by Klarna in 2014.
- Operates in the customer-to-business market, where a customer is making a purchase from an online retailer.
- Available to customers with an account in Germany, Austria, Switzerland, Poland, Italy, Spain, Belgium and the Netherlands.
- Accounts for 18% of online transactions in Germany.
- 20m users across Europe.
- No virtual account or registration required (uses customer's online banking details).
- The Sofort system is secured in accordance with the security requirements of banks—leverages banks own online banking security and authorisation protocols.
- Merchants do not face chargeback risks.
- Unlike a standard credit transfer, the merchant immediately receives confirmation of the authorisation of the payment (but not the payment itself). This can speed up the delivery process for the goods (and reduce the risk to merchants).

Source: Mollie (2018), 'How does Sofort banking work?'. Adyen (2018), 'Sofort'. Oliver Wyman (2016), 'EU Retail and SME Payments: State of the industry'.

Box 4.6 Trustly

- ACH-based payment solution.
- Swedish company founded in 2008.
- One of the first providers to make the existing interbank-processing infrastructure available for online retail payments.
- Allows consumers to make payments from mobile, tablet or desktop devices with the highest available bank-level security.
- To make a purchase, the customer is required to pass their banking credentials to Trustly, which performs the transaction on the customer's behalf.
- Available in 29 European countries.
- More than 67m users.

[77] European Commission (2018), 'Payment Services Directive: frequently asked questions', January.

- Key merchant benefits include real-time transaction confirmation, and no chargebacks risks.
- Features include refunds and no transaction limit, payment guarantee is not offered.
- Products include Trustly Direct Debit, which replaces paper-based forms and credit cards for all types of recurring subscriptions and one-click services.

Source: http://www.paymentinstitutions.eu/uploads/Third_Party_Providers.pdf. Trustly (2018), 'Trustly Direct Debit'. Oliver Wyman (2016), 'EU Retail and SME Payments: State of the industry'.

The examples reflect entry into the market prior to PSD2, where Sofort and Trustly currently operate under the first PSD. The advent of PSD2 will further catalyse the trends of payment initiation services observed, as well as encouraging the development of new payment methods entirely. PSD2 has enabled, and will continue to enable, new propositions and business models to develop that build on top of existing payment infrastructure and offer services that link to the same access point that consumers use.

The UK has been leading the trend of granting of new licences, with 78 licences approved by the Financial Conduct Authority (FCA) for third-party payment providers to operate as an account information or payment initiation service provider (AISP or PISP).[78] Many of these obtained the licence in the UK with the plan to operate across Europe. The Autorité de Contrôle Prudentiel et de Résolution (ACPR) in France has granted seven companies AISP licences, of which five also act as PISPs,[79] and BaFin lists one company that has been granted an AISP and PISP licence.[80]

An example of one of the new licence holders, GoCardless, is explored below. While a new player in UK payments, it demonstrates the increasing trend for third parties to develop payment initiation services.

Box 4.7 GoCardless

- GoCardless is creating a new international payments network to rival credit and debit cards.
- It brings together a range of direct debit schemes across Europe.
- Currently processes £3bn worth of transactions for over 30,000 organisations across the UK and Europe, with rapid growth expected.
- Clients range from Thomas Cook to TripAdvisor and *The Guardian*.
- Operate in the UK, France, Germany, Sweden and Spain, with expansion planned into other countries.

Source: GoCardless website, 'About GoCardless'.

4.9 Peer-to-peer payments

A number of fintechs have been successful in entering the peer-to-peer market by offering consumers user-friendly experiences. Examples include Swish, Tikkie, TWYP, Bizum and MobilePay. These methods enable consumers to transfer funds from their bank account to another individual's account through

[78] Financial Conduct Authority (2018), 'Account Information & Payment Initiation Service Providers'.
[79] ACPR website (2019), ' Registre des agents financiers'.
[80] BaFin website (2018), 'Zahlungsinstitut'.

a mobile device. While they are not used to make retail payments in their peer-to-peer form, these providers are increasingly leveraging their customer base and offering additional functionalities that enable customers to carry out both physical in-store and online purchases. Examples of peer-to-peer payment methods that have done this are explored in the boxes below.

Box 4.8 Tikkie

- Peer-to-peer mobile payment method in the Netherlands.
- Launched in 2016.
- Customers of all Dutch Banks can use Tikkie free of charge.
- A platform to send payment requests using WhatsApp or text message, inviting the sender to pay through iDEAL.
- A user-friendly process—the person wanting to be paid creates a secure link by specifying the amount of and reason for the payment. The app then generates a link for sharing on WhatsApp. This includes the payment recipient's IBAN. Alternatively, links (also called 'Tikkies') can be sent via Messenger, Telegram or text (SMS).
- A unique feature of Tikkie is that the user does not need to create a new online bank account or separate e-wallet in order to receive payments. The money is automatically credited to their existing current account.
- With over 2m users, it is the biggest app of its kind in the Netherlands.
- Method being trialled for physical in-store purchases.
- Launched in Germany in March 2018.

Source: ABN AMRO (2018), 'Tikkie success reaches 2 million users', press release; ABN AMRO (2016), 'ABN AMRO enables payments via WhatsApp in the Netherlands', press release; ABN AMRO (2018), 'Tikkie now available in Germany', press release.

Box 4.9 Twyp

- Peer-to-peer payment app.
- Launched by ING in 2015.
- Operates in Spain.
- Allows consumers to pay small amounts to contacts on their mobile devices in just a few seconds.
- Twyp uploads the user's contact list with the user's permission and an icon indicates which contacts already use Twyp.
- Users can invite their contacts to use the app as well. Money transfers can be done via a chat function and a personal code confirmation.
- It can be used for physical in-store payments at selected retail partners.
- Additional services include free money withdrawals for all users at selected retailers.
- Consumers in Spain pay a commission when withdrawing money from ATMs that are not owned by their own bank. Twyp Cash now offers ING customers a cheaper alternative to competitors' ATMs.

Source: ING (2015), 'ING launches Twyp', press release. ING (2017), 'Free cash withdrawals for all Twyp users', press release. ING (2016), 'Withdrawing money with your smartphone', press release.

Box 4.10 Bizum

- Peer-to-peer mobile payment methods.
- Launched in 2016 by 27 Spanish banks.
- Integrated with customer's bank account app.
- Operates in the Spanish market (requires the sender and the receiver to have a Spanish bank account).
- It works by entering the mobile number of the payment recipient.
- Bizum is also developing solutions in order to enable both online and physical in-store payments.
- In both online and physical in-store shopping, customers would input their mobile number and the money would then be transferred from the customer's account.
- As of February 2019, Bizum counted 2.9m users, with an objective to reach the mark of 5m users by the end of 2019. In terms of usage, Bizum reported transaction numbers of 20.6m. By the end of 2018, the average transaction value was reported to be around €54. Using this average value with 2019 usage, this yields a total transaction value of c. €1.2bn.

Source: https://bizum.es/; Reportlinker (2018), 'Payments in Spain 2017: What Consumers Want', La Vanguardia (2018), 'Bizum cierra2018 con 2,5 millones de usuarios y quiere el doble en 2019', 20 December.

Box 4.11 MobilePay

- Introduced in Denmark in 2013 as a peer-to-peer money transfer service.
- Bank-owned (Dankse) mobile payments offerings.
- Expansion into physical in-store and online payments in 2014.
- More than 60% of Danes use MobilePay, with more than 180m transactions per year.
- On-us transactions use credit transfers, while card rails are used to facilitate payments outside of the closed loop.

Source: European Payments Council (2017), 'The Danish payment landscape: When instant becomes the new normal', MobilePay webpage, 'About'.

Box 4.12 Payconiq

- Owned by a number of Dutch and Belgian banks.
- Mobile application that offers online money transfer services in Belgium, Netherlands and Luxembourg.
- Allows customers to receive or pay payments by smartphone in real-time.
- Payment solution where customers scan branded Payconiq QR codes with the Payconiq app and confirm or authorize transactions.

- Participating banks include ASN bank, Belfius, ING, KBC, Rabobank, Regio Bank, and SNS.

Source: https://dev.payconiq.com/online-payments-dock/#why-payconiq; https://www.payconiq.com/en/about-us/

4.10 Online and person-to-person-based payment methods are being made available for physical in-store payments

The use and application of online and peer-to-peer payment methods is changing, with participants in these markets increasingly bringing their offering to the physical in-store market. For example:

- Payconiq, a mobile payment app linked to a customer's current account, can be used by its customers in the Netherlands and Belgium to make payments in store (using QR codes), online and between individuals.[81]
- PayPal can be used to make in-store payments.
- In the Netherlands, iDEAL can now be used for in-store purchases using QR codes. Similarly, ABN Amro has brought Tikkie peer-to-peer payments app to the high street in the Netherlands, having created a system that enables consumers to skip the checkout line and buy goods by scanning the products with their smartphone before being directed to the payment page of iDeal. This is being trialled in supermarkets in Amsterdam, where customers can pick up and scan (with their smartphones) food and drink items that have QR codes on their packaging.[82] Similar initiatives have been trialled by M&S and Co-op in the UK.[83]
- Bizum and Twyp, peer-to-peer providers in Spain, are expanding their offering to physical in-store payments.[84]
- In Denmark, the success of MobilePay, a peer-to-peer app, has seen its offering expand into in-store and online payments.[85]

These examples illustrate the increasing blurring of lines between in-store and online transactions.

4.11 Digital wallets

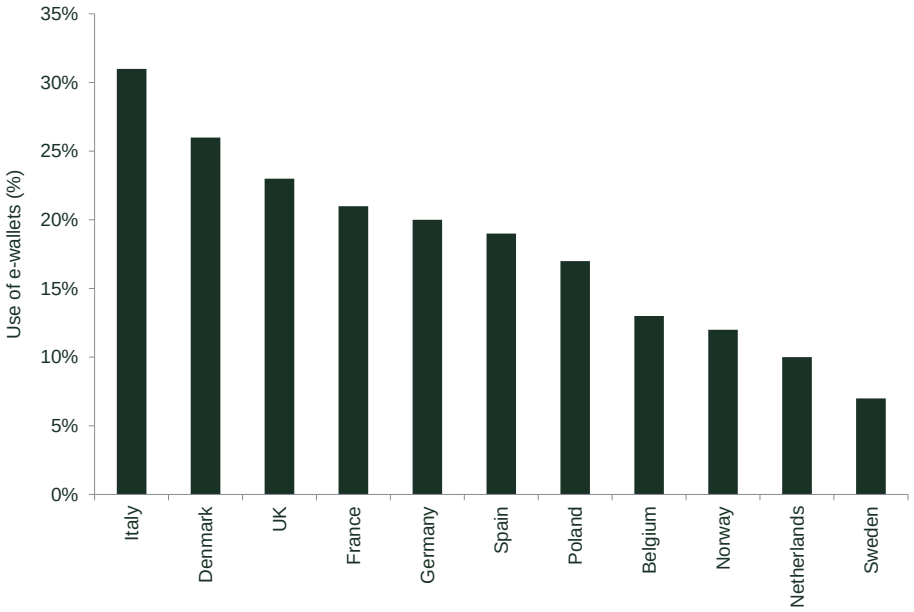
A number of new entrants to the payments sector are digital wallet providers that can be used for either, or both, online and physical in-store transactions. Some of them, such as Amazon and Google, have entered by leveraging their existing customer base, while others, such as Klarna and PayPal, have entered and rapidly acquired a customer base by offering convenience and new functionalities.

Digital wallets give consumers access to multiple payment funding options, such as debit cards and credit transfers. The consumer funding preference varies by country. For example, in Germany 80–85% of PayPal transactions are funded by direct debits and credit transfers,[86] whereas in other countries, such as the UK, most transactions are funded by debit or credit card.

[81] Payconiq website (2018), 'About us'.
[82] Finextra website (2017), 'ABN Amro brings Tikkie P2P payments app to the high street', December.
[83] iNews (2018), 'M&S customers can now bypass tills with Amazon Go-Style payment option', October.
[84] Twyp POS payments are offered at partnering retailers in Spain. Google Play website (2018), 'Twyp – Pay and get cash back'; Payments Cards & Mobile (2016), 'Spanish banks launch mobile payments initiative Bizum', October.
[85] MobilePay website, 'The story of MobilePay'.
[86] See IT Finanzmagazin (2018), 'Die girocard ist vermutlich zu spät – Interview mit Hugo Godschalk, PaySys Consultancy', 19 September.

The rise of digital wallets has resulted in customer relationships being maintained (or 'owned') by the wallet, rather than by the providers of the actual infrastructure or payment method to which the digital wallet gives access. Consumers are attracted by the convenience that digital wallets offer, avoiding the need to enter card or bank account details. The prominence of e-wallets payments, as a proportion of online transactions, is shown in Figure 4.8.

Figure 4.8 E-wallet share of online transactions, 2017



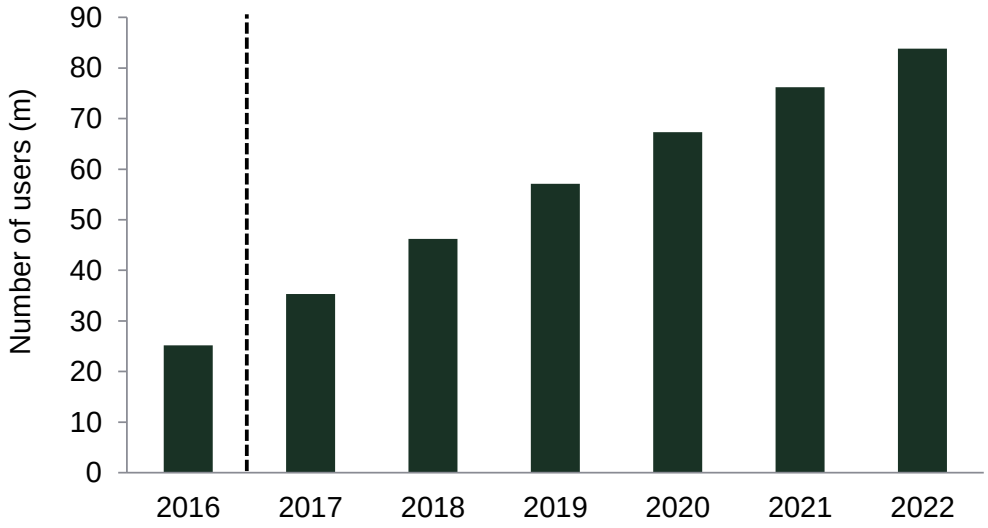
Note: Covers e-wallets used for online transactions, and includes providers such as PayPal, Visa Checkout, MobilePay, and Masterpass.

Source: Worldpay (2018), 'Global Payments Report', November.

The penetration of smartphones and development of contactless technology in Europe have driven innovation in mobile wallets, enabling consumers to make payments via their mobile phones. For example, if a digitised version of a credit card is stored within a mobile wallet and used to make a payment, banks can link the card number to the user's account and thereby authorise the transaction. This makes use of contactless technology to connect the mobile phone to a payment terminal in store. The technology is widely used, with well-known providers including Apple Pay and Samsung Pay.

The use of mobile wallets is expected to increase significantly over the coming years. This is captured in Figure 4.9, which forecasts the growth in mobile wallet users over time in Europe.

Figure 4.9 Number of mobile wallet users in Europe (m), 2016–2022



Note: The forecast starts from 2017.

Source: Statista, 'Digital payments'.

Most digital wallet providers have a policy of accepting many different payment methods. The implications of digital wallets for the competitive dynamics are discussed in section 6.

Examples of digital wallets are explored in the boxes below.

Box 4.13 PayPal

- E-commerce payment provider.
- Entered the market by offering unique consumer convenience—once registered, only a user name and password are required to make a payment and address details are automatically provided to the retailer.
- Operates across the EEA.
- The UK is its main European market with ~24m users, followed by Germany with ~20m; ~20m users in the remainder of Western Europe
- Market share vary across Europe, e.g. it accounts for 52% of e-commerce transactions in Germany.[87]
- A customer wishing to use this service can transfer money directly from a bank account to their PayPal account, or link a payment card to the account.
- The funding preference varies by country, e.g. in Germany most transactions are funded by bank transfer/direct debit.
- Under PayPal's business model, it is primarily the payees who are charged fees. It is free of charge to the user (with the exception of currency conversions fees).
- Expanding into physical in-store purchases with the acquisition of iZettle in 2018.

Source: PayPal's website, https://www.paypal.com/; Danish Payments Council (2014), 'Report on New Payment Solutions'.

[87] Bundesbank (2018), 'Payment behaviour in Germany in 2017', 9 February.

Box 4.14 Amazon Pay

- E-wallet payment solution.
- A method that gives consumers the option of making payments for goods and services on third-party websites using the payment methods already associated with their Amazon account.
- Amazon Pay leverages Amazon's existing customer base.
- To make a payment, a customer can use any of the payment methods stored on their Amazon account.
- Free of charge to customers.
- Purchases are covered by the Amazon A-to-Z guarantee.
- Amazon has offered retailers discounts to adopt its payment system.
- Service available across a number of European countries.

Note: Amazon Pay is available for merchants with a place of establishment in Austria, Belgium, Cyprus, Denmark, France, Germany, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, Switzerland and the UK.

Source: Amazon Pay website, 'What is Amazon Pay?'. Bloomberg (2018), 'Amazon offers retailers discounts to adopt payment system'.

Box 4.15 Vipps

- Launched in Norway in 2015.
- It allows users to make digital peer-to-peer transfers and payments for e-commerce purchases using debit or credit cards on account.
- It has approximately 2.6m individual users in Norway—more than half the population—with more than 30,000 corporate customers.
- Additional features include the ability to split bills, chat, and upload photos, while identity checks are carried out using biometric authentication.

Source: Moody's (2017), 'Vipps and Swish', 16 October.

Box 4.16 Apple Pay

- Apple Pay is a means of physical in-store purchases payment linked to a credit or debit card.
- It operates in the consumer-to-business market.
- Apple Pay had an estimated user base of 127m in 2017, with only 16% of global iPhone users activating Apple Pay.
- It uses NFC technology to connect the mobile phone (as well as iPads and Apple watches) to a payment terminal.
- New features include enhanced identification procedures that draw on biometric technology such as finger printing, enhancing security.
- Additional functionality is set to include the ability of consumers to transfer money to each other using Apple Pay Cash.

- This would see Apple Pay enter the peer-to-peer market in Europe. This service is currently available in the USA only.

Source: Williams, R. (2015), 'Apple Pay: Everything you need to know', *The Telegraph*. Gizmodo (2018), 'Apple Pay Cash's UK and European Launch Could be Imminent', news article.

5 Market outcomes

5.1 Introduction and key messages

- From a public policy perspective, the functioning of a market can be assessed by the outcomes it delivers for end users, which, in this context, includes both customers and merchants. At a high level, market outcomes include the following.
  - Choice and quality—the variety of services that are being offered; to what extent are user needs met? Are end-customers satisfied with the levels of service?
  - Innovation—have new products and/or more efficient processes been introduced?
  - Volumes—which part of the market is served?
  - Prices—in this case, the total costs incurred by end users in using the payment methods for the given service offering. Are the trends observed in terms of choice, quality, innovation and, ultimately, volumes consistent with the pricing of the services being provided?
- There have been significant changes in terms of choice, quality and innovation over time, improving outcomes for end users. International payment schemes such as MasterCard and Visa have played a key role in driving forward the adoption of innovative new methods of payment.
- These changes have impacted on market outcomes in terms of volumes. Most notable is the ongoing large-scale shift from cash to contactless options for in-store payments. The increasing range of online payment options are also impacting on in-store payments through increasing use of mobile payment facilities.
- The prices observed for different methods of payment are consistent with these trends, as customers shift to more advantageous options in terms of the price to quality trade-off.

This section examines the market outcomes for end users, including:

- choice and quality—section 5.2;
- innovation—section 5.3;
- volumes—section 5.4;
- prices—section 5.5.

5.2 Choice and quality

The changing payment systems market has led to both greater choice of payment methods and an increased quality of payment methods. Changes in choice and quality affect both consumers and merchants.

5.2.1 Choice

The increase in the number and type of players involved in the payment systems market means that consumers and merchants have a variety of

payment methods available to them for both in-store and remote payments. Both consumers and merchants will typically have a variety of options for any given payment, as 'multi-homing' is common.

For in-store payments, consumers can use:

- cash;
- cheques;
- cards (both debit and credit and including contactless and/or other PIN-activated options offered by different schemes);
- mobile payments and digital wallets (using NFC or QR codes).

For remote payments, consumers can use:

- cards;
- digital wallets;
- debit and credit transfers;
- bank transfer-based payment methods or other methods accessing current accounts and initiating credit transfers (under PSD2); and
- cryptocurrencies.

Another important trend is that the distinction between remote payment methods and in-store payments is becoming increasingly blurred, as explained in section 2.

Although all payment methods provide a minimum level of service, they vary significantly in their product features, as set out below. Some product features are attractive to the consumer, which makes these payment methods indirectly attractive to a merchant. Some are directly attractive to merchants. These features include the following.

- **Chargeback and refund mechanisms**. Although overall there has been a trend towards greater consumer protection in terms of chargeback and refund mechanisms, there is variation in these mechanisms across payment methods. Many international card schemes, as well as digital wallet providers, provide refund mechanisms and chargeback services. A refund mechanism means that a consumer can obtain a refund if they decide to return a product. A chargeback service means that the consumer gets a refund if: a purchase does not arrive; the consumer is charged more than originally agreed; the company goes out of business and the service is not delivered; or the customer's card is used fraudulently. However, some of the more traditional payment methods do not facilitate refunds or provide chargeback services. Credit transfers, for instance, tend to be non-refundable, and some local card schemes do not offer a chargeback service, such as Girocard in Germany. Some online payment methods, such as iDEAL in the Netherlands, are also based on credit transfers and do not offer chargeback or refund mechanisms; however, merchants can separately choose to become a member of a trustmark that offers consumers access to a dispute mechanism.[88] A level of consumer

[88] See https://www.thuiswinkel.org/ (in Dutch).

protection is offered under PSD2 in the event of unauthorised direct debits from an account.[89]

- **Clearing of transactions**. Nowadays, all retail payment methods tend to clear transactions instantaneously, or within a day. The settlement of transactions can vary, with certain payment methods clearing at T+0 and others at T+3.
- **Instant authorisation and notification of payment**. Almost all payment methods provide instant authorisation. This means that the consumer can receive the good or service they have bought immediately. In contrast to older payment methods such as credit transfers and direct debits, almost all retail payment methods ensure that the retailer is immediately notified of any online payments. The retailer can then be certain that its account will be credited with the agreed amount and can therefore proceed with the delivery of the purchased goods and/or services.
- **Access by merchants**. The ability of different merchants to accept payment varies by payment method. All possible merchants (including individuals) can accept cash without taking any additional action. A PayPal account is required to accept a PayPal payment online, although this is easy to set up. In contrast, card payments require a relationship with an acquirer and a terminal for in-store payments, although some payment service providers are responding by making it easier for smaller merchants to accept cards. For example, MasterCard has revised its rules on the use of PIN pads and magnetic stripes in payment terminals, following collaboration with smaller merchants about the high costs of adoption.[90] In addition, work is being done on a new solution to lower the cost of acceptance for small merchants by turning smartphones into payment terminals.[91] Through enabling mobile phones to accept contactless card transactions directly, the need for a separate payment terminal is removed completely.[92] Other new entrants, such as PayPal and iZettle, have also targeted smaller business owners.
- **Seller/buyer verification**. Many payment methods now offer seller and buyer verification, providing payment users with reassurance that the person or organisation to which they are providing money is a legitimate entity (and, similarly, providing merchants with reassurance by verifying the customer). For example, any merchant who accepts debit and credit cards will be known and authorised by the card scheme and network. This can provide the customer with reassurance that the merchant is legitimate. Certain digital wallet providers, such as PayPal, can provide seller verification to help give buyers additional peace of mind when transferring to

[89] Under PSD1, payers had the right to a refund from their payment service provider in the case of a direct debit from their account, under certain conditions. PSD2 provides a legislative basis for an unconditional refund right in the case of a SEPA direct debit during an 8-week period from the date the funds are debited from the account. European Commission (2018), 'Payment Services Directive: frequently asked questions', January.
[90] For example, following discussions with the mPOS payment facilitators, Mastercard learned that the magnetic stripe in the terminal cost $10–$15 to manufacture. As magstripe mPOS transactions account for only 0.001% of all European transactions, the scheme decided to remove the magnetic stripe requirement. This change to the scheme rules reduced the manufacturing cost of the terminals by 18%. This cost reduction was passed on to the merchants. Source: Mastercard.
[91] For example, Mastercard identified that the pinpad in a terminal costs around $15, and therefore developed PIN on Glass solutions using the pinpad in mobile apps, removing the need for a physical pinpad.
[92] Mastercard (2017), 'Turning smartphones into payment terminals', press release.

a seller.[93] Similarly, Amazon Pay is able to reassure merchants by providing a customer name and verified email check.[94]

Certain payment methods, such as credit transfers, do not currently provide confirmation or verification of either the sender or the recipient. In most countries, banks currently verify the sort code and account number but not the name. As explained below, in the UK, this will be changed by introducing a confirmation of payee service.[95]

- **Convenience**. Over time, payment methods have become more diverse in their access and convenience of use.
  - Digital wallet providers, such as Amazon Pay, allow consumers to save their payment details on their account. This means they do not have to re-enter payment details for each purchase.
  - Consumers can now access and use certain payment methods through biometric authentication (explained in more detail in the next section).
  - Consumers can now make payments at bricks-and-mortar merchants through their mobile phones using NFC (explained in more detail in section 5.3).
  - Consumers can now use their PC, smartphone or wearable devices to buy goods and services, using tokenised card on file payment (via either one-click ordering, in-app payments or IoT payments).
  - Consumers can now also make contactless payments using their credit or debit cards.
- **Fraud prevention and protection**. As explained in more detail in section 5.2.2, payment methods now tend to have more mechanisms in place to prevent fraud and offer protection to consumers. Certain payment verification methods (such as biometric authentication) can help to prevent fraud, as can seller/buyer verification. As noted in the chargeback section, there has been a trend towards greater consumer protection in terms of refund guarantees and chargeback mechanisms.
- **Availability of credit.** Not all payment methods provide access to credit. For instance, credit cards provide short-term interest-free credit that is usually not available in direct debits. Depending on the borrowing needs and spending preferences of payment users, one payment method can be more attractive than another.

These developments in choice, particularly in retail payment methods, have had an impact on consumer expectations of payment methods in general. In particular, consumers want payment methods that are convenient and secure. A 2017 survey of 1,500 individuals found that consumers are incentivised to use digital payments because of the convenience offered by these methods—i.e. the streamlined order, checkout and purchase preferences—and their security features. More than 40% of users of digital wallets indicate that security and convenience play a role in their use of these methods. For more

[93] For more detail, see https://www.paypal.com/uk/webapps/mpp/paypal-safety-and-security.
[94] For more detail, see https://pay.amazon.com/uk/merchant.
[95] See Payment Systems Regulator (2018), 'PSR opens consultation for Confirmation of Payee', 23 November.

than 35% of non-users, security would play a role, while convenience would be an incentive for 20–30%.[96]

The change in expectations regarding security is evidenced by the fact that payment regulators have enacted legislation and created entities to tackle and prevent different types of fraud.[97] For example, the UK is in the process of enacting legislation to limit authorised push payment (APP) frauds, whereby customers are tricked into transferring money to a fraudster's account.[98] A UK consumer body submitted a super-complaint to the Payment Services Regulator (PSR) regarding APP frauds, stating that customers do not receive enough protection.[99] In response, the industry will be introducing 'payee confirmation' service, where the name of the payee will be verified prior to payment transfer.

5.2.2 Quality

The main 'quality outcomes' for electronic payments are in relation to fraud prevention and operational system resilience.

Fraud

The payment networks face continuous and dynamically evolving threats from fraudsters. Digital security is an increasingly important area due to the unprecedented amount of data being created and shared, the risk of the sharing economy, and the coming of age of the first digital generation. Addressing fraud is not a static process, as groups and individuals conducting the fraud will respond to any preventative measures that are introduced. In particular, introducing a new security solution in one area often results in fraudulent activities moving to other areas, which then become relatively easier to target.

Overall, as set out in the preceding section, there has been an increase in fraud prevention measures in the payment systems market, which has led to a general reduction in instances of fraud. Indeed, card fraud at EU payment terminals reached its lowest level for 13 years in 2018.[100] This has been attributed to the effectiveness of EMV, the global standard for chip-based debit and credit card transactions, as well as improvements in counter-fraud measures such as geo-blocking, fraud monitoring and detection capabilities.[101] There have also been improvements in anti-fraud measures for cash, reducing counterfeit notes, while steps are being taken to tackle fraud with bank transfers (as explained above).

Furthermore, other innovations, such as biometric authentication and tokenisation, are helping to prevent fraud, as discussed in more detail in Section 5.3. Challenges remain in the case of fraud related to e-commerce and online transactions.

[96] Forrester Consulting (2017), 'The Next Phase Of Digital Wallet Adoption: What It Takes To Convert Skeptics, Engage Early Adopters, And Prepare Merchants', September, p. 5.
[97] Lipis Advisors (2017), 'Fraud prevention and resolution in push payment systems', prepared for the UK's Payment Systems Regulator, May.
[98] Ibid.
[99] Payment Services Regulator (2017), 'Authorised push payment scams: Report and consultation', November.
[100] Finextra (2018), 'Card fraud at EU payment terminals hits lowest level for 13 years', 10 October.
[101] Ibid.

Operational system resilience

The operational resilience of a payment system relates to the risk of a network outage that might mean a payment system is unavailable for a period of time or that it might not function at sufficient speed.

Such system failures are rare, and the system is usually back online within a few hours. Furthermore, payment systems have invested in a number of risk-mitigation measures, such as the following.

- **Authorisation stand-in services**. If an issuer does not respond to an authorisation request quickly enough, a back-up solution is provided to prevent transactions from failing due to the non-availability of the issuer.
- **Setting minimum availability requirements for clearing and settlement**. For example, a payment system might require that clearing and settlement systems provide currency conversion for transactions where the purchase currency does not match the card currency. Disputes could arise from duplicate or incorrect transaction processing. Requirements can be set to ensure clearing systems have appropriate dispute resolution mechanisms in place to deal with these situations.

5.3 Innovation

Although it is closely related to quality of service provided to payment users, there has been a significant amount of innovation in the payments market in recent years, resulting in more new products and more efficient processes. Some of the most notable innovations include the following.

- **Contactless payments**. Contactless technology allows users to pay for certain transactions upon contact without entering a PIN. It was widely adopted in 2015, after it received the necessary buy-in from issuers, acquirers, and merchants and support from technology providers. The fact that a stage of identification is removed from the process is managed through: continuously monitoring transactions in order to detect fraudulent card use as quickly as possible; asking for a PIN to prevent fraudulent use of the card if the profile of transactions suggests that there is greater risk; and, in some countries, allowing contactless payment only for transactions with a certain (low) value.
- **Request for payment**. For example, PayPal introduced request for payment services, which allow anyone to request payment from anyone else, business or consumer, using an email address or mobile phone number.[102]
- **Biometric authentication**. Payment users can now prove their identity using fingerprint or facial recognition. For instance, by creating a digitised map of the face, Mastercard's Identity Check Mobile and Visa's ID Intelligence solutions allow consumers to use a selfie to confirm transactions.[103]
- **Wearable payments**. As with contactless payments, NFC technology has enabled consumers to pay using wearable devices, including smartwatches, smart jewellery, and fitness trackers.

[102] For more detail, see https://www.paypal.com/uk/webapps/mpp/requesting-payments.
[103] Mastercard (2016), 'Mastercard makes fingerprint and 'selfie' payment technology a reality', October.

- **NFC**. By using mobile contactless technology, consumers can now make payments at bricks-and-mortar merchants with their mobile phones. Apple Pay, for instance, is a means of card-linked payment for physical transactions that connects the mobile phone to a payment terminal.
- **Mobile payment acceptance for physical transactions**. These innovative approaches allow merchants (particularly SMEs) to take payments anywhere using a small card reader (as provided by iZettle, for example) and a smartphone.[104]
- **Tokenisation**. Tokenisation is the process of replacing a sensitive piece of information—in this case a card's primary account number, the 16-digit number on the plastic card—with a non-sensitive, unique alternative card number, or 'token'. This creates an EMV-like security for each transaction, which reduces the risk of the credit card number being misused or stolen and therefore helps to prevent fraud.
- **Credit facilities**. Credit and debit cards used to be the only payment method offering a credit facility; however, newer payment providers such as Klarna[105] and PayPal[106] now offer similar innovative credit arrangements. Under these arrangements, payment users can purchase goods from certain merchants and pay for the goods in instalments.

Innovation in payment systems is expected to continue at a rapid pace, bringing about continued change in consumer and merchant experience and usage trends. International payment schemes, including Visa and MasterCard, have driven innovation in a number of areas, such as with contactless payments and tokenisation, by developing the technology and standards. As exemplified by contactless payments, these innovations can then spread to other payment methods, including local schemes.

The incentives associated with the ownership structure of international schemes such as MasterCard, compared to that of a bank-owned scheme, may enable them to identify and respond faster to the needs of different participants in the payment system.[107] This can result in faster promotion and adoption of innovative technology.[108]

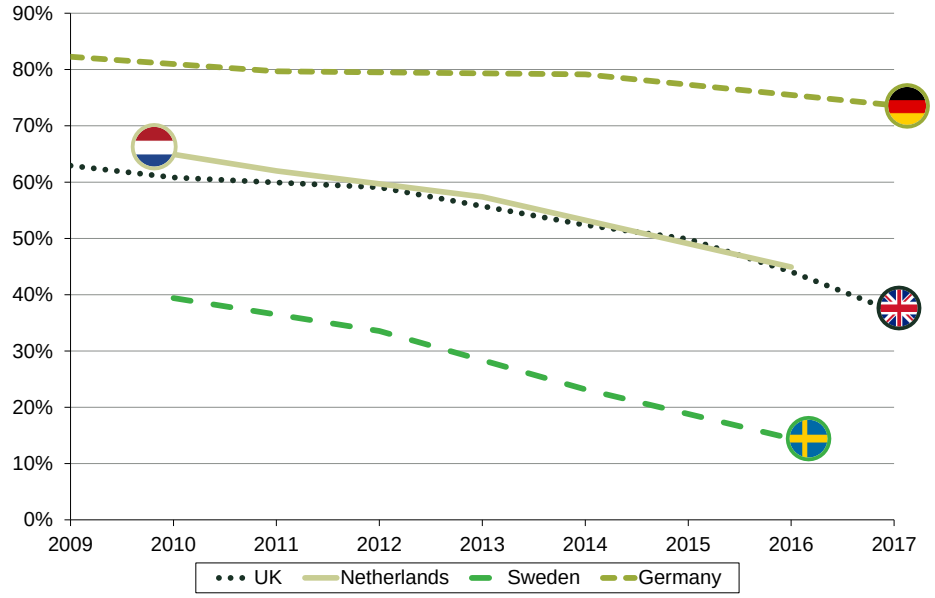
5.4 Volumes

Increased levels of choice, quality and innovation have led to some significant changes in the usage of payment methods. More traditional, less efficient methods—such as cash, cheques, and standard credit transfers—are being rapidly replaced by more efficient, electronic payment methods—such as cards, e-money and services based on bank transfers.

As illustrated in Figure 5.1 and Figure 5.2 below, the use of cash and cheques has fallen significantly in recent years in a number of EU countries, although there is considerable variation across countries.

[104] For more detail, see https://www.izettle.com/gb/pos-systems.
[105] For more detail, see https://www.klarna.com/uk/customer-service/slice-it/what-is-my-credit-limit/.
[106] For more detail, see https://www.paypal.com/uk/webapps/mpp/paypal-virtual-credit.
[107] For a discussion of ownership and governance models in the payment systems market, see Oxera (2015), 'Governance and ownership of payments systems infrastructure', prepared for Vocalink, 27 November.
[108] One example of this is the German market, where the local bank-owned scheme (Girocard) was slower to promote the adoption of contactless technology than in other countries.

Figure 5.1 Cash transactions as a proportion of physical in-store transactions/all transactions, by volume, 2009–2017



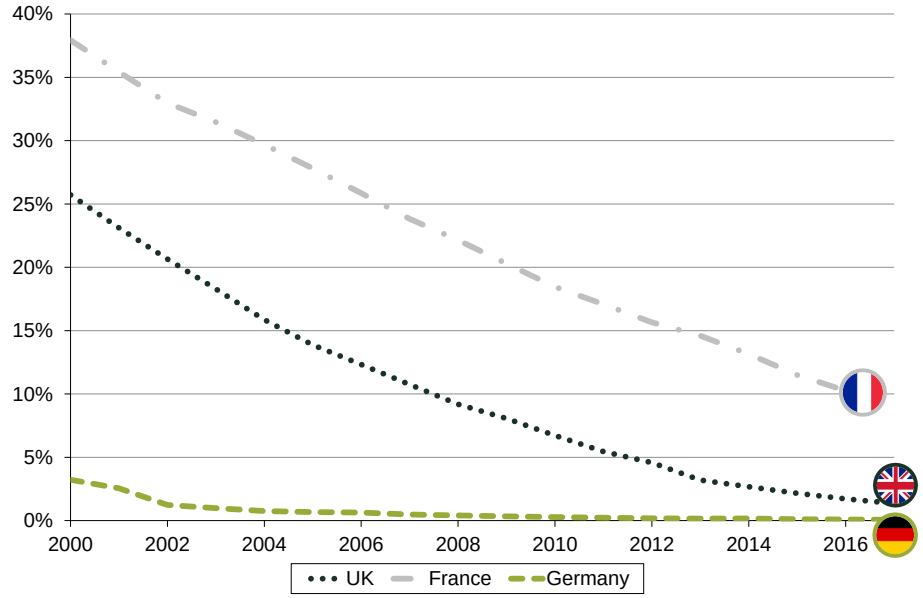
Note: Countries chosen on the basis of data availability. Data was not available for the Netherlands in 2012, 2014, or 2015; Sweden in 2011, 2013, or 2015; nor Germany in 2010, 2012, 2013, or 2015. The chart is based on data from different surveys of different scopes (i.e. with a focus on physical in-store transactions or all transactions) and different methodologies.

Source: European Central Bank (2018), 'Trends and developments in the use of euro cash over the past ten years', 24 September, Chart D.

In Sweden, a relatively cashless country, the proportion of cash transactions fell from 40% in 2010 to c. 15% in 2016. In Germany, meanwhile, the proportion of cash transactions fell from around 80% in 2009 to just above 70% in 2017.

Furthermore, the number of cheque payments has fallen across Germany, France, and the UK. As illustrated in Figure 5.2, cheque payments are now negligible in the UK and Germany in 2017. Although cheque payments represented 10% of total card, cheque, credit transfer and debit transactions in France in 2016, this is still a significant decline from 2000, when this proportion was almost 40%.

Figure 5.2 Cheque transactions as a proportion of card, cheque, credit transfer and direct debit transactions, by volume (%), 2000–2016



Source: European Central Bank data.

That said, cash transactions do still account for a significant proportion of smaller in-store payments, and they are not expected to disappear as a major payment method in the near future. Cash transactions account for the majority of in-store transactions smaller than €45, but cards represent the majority of in-store transactions over €45. Forecasts for cash usage suggest contactless payment methods will continue to grow, but cash is still expected to be one of the major payment methods for many years.[109]

In terms of financial inclusion, the increase in the number of cards and other payment methods appears to have benefited a large number of consumers and merchants, including smaller merchants.

The number of cards per person is above 1.5, with this rising to around 3.5 for certain European countries. This would suggest that most inhabitants in Europe have access to a card. Furthermore, the estimates of the number of cards per person are likely to underestimate the number of options for card payments that consumers have access to due to cards co-badged with a local scheme, which provide more than one payment option. These cards are equivalent to owning two physical single-badged cards—one of the local scheme and one of an international scheme. For example, this is the case for France and Germany.

These shifts may also have become increasingly likely as most consumers now have a range of payment methods available in most payment situations, both in-store and online. Consequently, the large shifts in usage patterns for payment methods being observed—and which are expected to continue being observed—primarily reflect consumers responding to changes in choice, quality and innovation.

[109] For example, the latest forecast for the UK, from UK Finance, suggests that cash will still be the second most important payment method (after debit cards) in 2027. See UK Finance (2018), 'UK Payment Markets Summary 2018', November.

5.5 Prices

Changes in transaction volumes through different payment methods mainly reflect consumers responding to changes in choice, quality, and innovation, and that consumers are not typically directly charged for using payment systems.[110] Therefore, the relationship between volume and price is an indirect one.

However, the shift in payment methods is consistent with the price of payment services, taking into account the changes in quality and innovation. In particular, consumers have shifted to payment methods offering additional benefits, relative to the cost of those methods to merchants. Below we consider:

- how the introduction of contactless payments has altered the price–quality trade-off for cards and mobile payments relative to cash (section 5.5.1);
- how prices reflect the services provided, innovation and broad usage trends, looking across the range of in-store and online payment options (section 5.5.2).

5.5.1 Cash and contactless payments

From the consumer's perspective, cash, the traditional payment method, is seemingly a free-of-charge payment exchange. However, there are costs to the payment users and merchants. These costs now make cash a less efficient means of payment relative to other payment options.

- **Risk of counterfeit coins and banknotes**. In contrast to other payment methods, there is a risk to both consumers and merchants that they could receive counterfeit cash.
- **Lack of consumer protection**. As noted above, other payment methods provide chargeback mechanisms, but these are not available to cash users.[111]
- **Risk of theft**. Although there is still a risk of theft with other payment methods, this risk could be higher for cash users and merchants holding cash.
- **Time-consuming nature of cash**. Cash transactions are more time-consuming than many other payment methods. This is because both the consumer and the merchant need to count the cash and then, if necessary, the merchant needs to give the consumer any change.
- **Cost of storage**. Merchants accepting cash must pay to secure cash-storage facilities.
- **Cost of insurance**. This can be a sizeable cost for retailers holding cash.
- **Cost of collection**. Merchants must also arrange for cash to be collected from their premises to be taken to their bank.

[110] The direct cost mainly falls on merchants, although one would expect the merchants to pass on the cost of payment systems to customers. Merchants can also encourage the use of payment systems that are preferable to the merchant for, for example, reasons of cost or quality. There can be additional indirect costs for consumers, such as the cost of purchasing an iPhone or the credit interest or annual fees charged for credit cards.

[111] For payments made in cash, it is possible at some merchants to obtain a refund when returning the goods within a certain period (e.g. 30 days). This is not always the case and in any event only concerns refunds (and not chargebacks).

Using findings from a 2015 European Commission study,[112] we can estimate the cost of cash for businesses with turnover between €20m and €200m.[113] As shown in the table below, the cost of cash is approximately 1.2% for the average transaction value on a debit card.

Table 5.1 The cost of using cash

Calculation of cost of cash usage		
Average transaction value (ATV) (when using a debit card)	[A]	€42
Fixed costs for cash handling (variable by number)	[B]	€0.032
Percentage costs (variable by value)	[C]	1.11%
Total cost for cash, % of value	[D]=([B]/[A])*100 + [C]	1.2%

Note: The estimates relate to the card-based approach. The overall cost is given by the fixed cost divided by the average transaction value for debit cards as appropriate from paragraph 143 of the cost study, plus the percentage cost.

Source: Oxera analysis based on European Commission (2015), 'Survey on merchants' cost of processing cash and card payments final results', March. We have adjusted estimates of the cost of cash to reflect the long-term costs of accepting cash payments for an average-sized merchant.

In addition, there are significant social costs of cash usage. Cash is heavily subsidised by the state, as all of the cost of making, securing, monitoring and even some of the cost of distributing cash is met by public money. Cash usage by consumers is also subsidised by banks (using resources drawn from other services that they provide, such as deposit taking), as, for example, ATM usage is often free. Estimates of the total societal cost of usage are around 0.5% of GDP.[114] On this basis, the total cost of cash usage was about 4% of the value of cash transactions in the UK in 2016,[115] with a similar estimate being likely on an EU basis. This suggests that the broader societal costs of cash usage are very significant compared to the 'private' costs faced by merchants.

As such, the move away from cash and the increase in the use of card and mobile payments noted above represent a shift towards more efficient, less costly payment methods with new features and benefits.

5.5.2 Pricing across payment methods

Comparing the total costs incurred by end users on a like-for-like basis is not straightforward because of the complexity of the value chain, the variations in the services and consumer protection provided, the unobserved outcome of negotiations on fees between acquirers and merchants, and the difficulty quantifying certain implicit costs.

We note that data on merchant service charges is typically not available in the public domain for all types of merchants, acquirers, or payment methods. The

[112] European Commission (2015), 'Survey on merchants' cost of processing cash and card payments final results', March.
[113] This turnover range is likely to be higher than the small independent shop considered in the price analysis further below (with total transactions of €100,000 per month). The cost of using cash may well be higher than these estimates for such a small independent shop.
[114] For example, the ECB estimates a median 0.51% of GDP in Table 7 of European Central Bank (2012), 'Occasional Paper 137: The social and private costs of retail payment instruments', September. The Institute and Faculty of Actuaries use an estimate of 0.45% of GDP for the UK in 'A Cashless Society: Benefits, Risks and Issues (Interim Paper)', November 2017.
[115] UK GDP was approximately £2 trillion in 2016 (ONS data). UK cash transactions totalled some £240 billion in 2016 (UK Finance, 'UK Cash and Cash Machines 2017'). Therefore, 0.5% of GDP was equal to £10 billion, which is approximately 4% of £240 billion.

following observations can be made from Oxera's assessment of publicly available fees.

- There is a broad range of fees. For example, the fee for Swish transaction in Sweden is around 0.29% (€0.15 per €50 transaction) and a Diners club card transaction nearly 4% (€2 per €50 transaction).[116]
- International schemes such as Amex and Diners Club have the highest fees. Fees are lower for Mastercard and Visa credit cards, and credit transfers and direct debit have lower fees still. This is as expected, since credit cards, Amex and Diners Club offer an interest-free credit period and other benefits while credit transfers and direct debit come with no or limited consumer protection—a credit transfer is irrevocable.
- Some domestic debit card schemes have relatively low fees. For example, Bancontact in Belgium charges around €0.39 per transaction.[117] This may partly be explained by their ownership structure (i.e. they are user-owned).
- The fees of some new entrants, such as Swish and iDEAL, are lower than those of traditional debit cards offered by Mastercard, Visa, and some of the local schemes. However, these payment methods come with less consumer protection (against fraud or lack of delivery by the merchant).
- Other payment service providers that facilitate payments from bank accounts, such as Sofort, are relatively more expensive. For Sofort, the transaction costs are 0.9% of the transaction amount + a fixed charge of €0.25 per transaction.[118]

In sum, there is a diverse range of pricing across payment methods, which also links to the variety of service features. Payment methods compete on product features, convenience, security and price.

[116] For companies, Swish costs between 1.5 and 2 SEK per transaction. We have used an exchange rate of €1 to SEK10.32. Medium (2017), 'Swish, the secret Swedish FinTech payment company created by Nordic banks and used by 50% of Swedes is challenging Swedish unicorns', 8 January.
[117] Mollie (2019), 'Bancontact', accessed 15 April 2019.
[118] Mollie (2019), 'How does Sofort banking work?', accessed 15 April 2019.

6 Competitive dynamics

6.1 Introduction and key messages

Multi-homing by consumers has intensified competition between both different types of card and between cards and other payment methods

- There is competition between domestic and international card schemes, three-party schemes, and bank transfer-based payment methods.
- New card schemes are also entering the market—e.g. China UnionPay is leveraging EEA acceptance network to target EEA issuers.
- The payments ecosystem is characterised by a large number of methods other than card payments.

New payments methods are entering and growing

- For example, Klarna, PayPal, Vipps, Swish, Payconiq, and merchant payment platforms (Amazon Pay).
- Growth rates suggest the possibility of substantial market share and new entry is further facilitated by PSD2 giving non-bank competitors easy access to interbank systems.

Digital wallets: choice of infrastructure will increase buyer power faced by payment schemes

- Digital wallets can use 'on us' and interbank processing infrastructure as alternatives to cards.
- As user multi-homing increases, merchants can also steer payments towards their preferred payment methods.
- This ability to direct payments allows digital wallets and merchants to impose additional constraints on acceptance fees

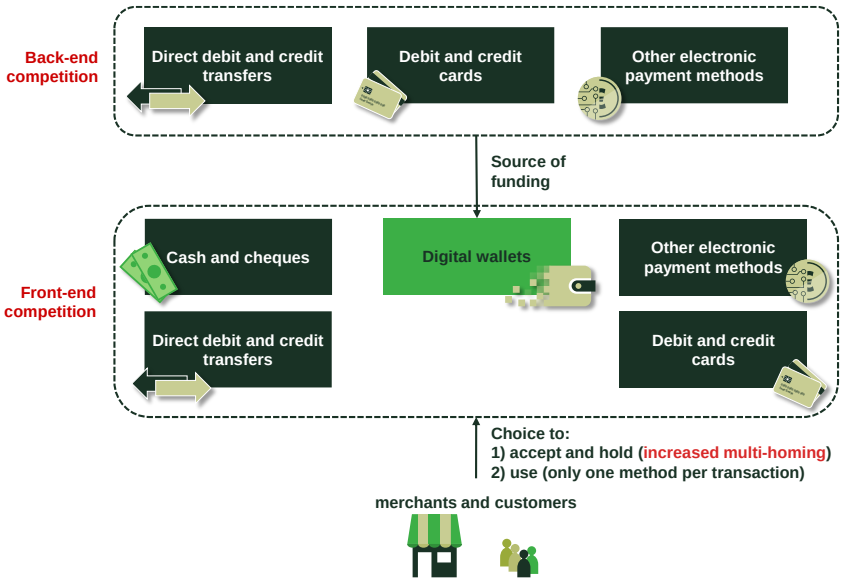
This section gives an overview of the recent and expected competitive dynamics in the market for the provision of payment methods in Europe. We identify the following themes.

- **Competitive dynamics allow for new entry**. In recent years, new entrants have come into the market, showing that barriers to entry can be overcome. New entrants have been successful by leveraging existing customer bases from other retail businesses (e.g. Apple) or by offering new services based on existing infrastructure (e.g. Sofort/Klarna). Looking ahead, the recent entry into force of PSD2 is likely to foster the entry and growth of new players (see section 6.2).
- **Multi-homing and front-end competition**. Front-end competition refers to the direct competition between payment methods to hold and use on the consumer side, and to accept on the merchant side. Consumers now increasingly hold more than one payment method, which is intensifying competition for actual use of the method by consumers. This also places increasing power with the merchants to influence the consumer's decision in terms of which method to use (see section 6.2).

- **Digital wallets and back-end competition**: The emergence and growth of digital wallets is fuelling back-end competition between payment method providers, as well as fuelling front-end competition (discussed above). This is because digital wallets can be loaded with or make use of different underlying payment methods (such as cards or direct debits from bank accounts). As such, they tend to own the relationship with the consumers and can therefore 'steer' them towards using certain payment methods to load the wallet, and negotiate with card schemes and banks on the fees or bypass the other payment methods altogether (see section 6.2).
- **Effects on the competitive dynamics**: the changes described above have already had an effect on the competitive dynamics in the market; newer, innovative payment methods are becoming popular in a number of countries. This is leading traditional players, such as banks and card schemes, to react by creating new services and entering new partnerships. This is covered in section 6.5, along with a case study of AliPay and WeChat, two successful examples of the dynamics described here.
- **Forward-looking trends**: we conclude with a summary of some of the trends and new developments that are likely to play out in this market as a result of the dynamics we have identified.

These themes are illustrated in Figure 6.1.

Figure 6.1 Summary of competitive dynamics



Source: Oxera.

6.2 Competitive dynamics allow for entry and expansion

The payments industry has historically been characterised by network effects, high fixed costs leading to high economies of scale, as well as economies of scope. These might have limited entry, but economic evidence suggests they are less of a limiting factor today. Firms are increasingly able to implement a number of strategies to avoid and overcome barriers to entry and successfully expand in the payments market. These strategies have allowed entrants to build up the critical mass required to gain a substantial share of the market, and this competitive threat has driven a response from incumbents, in terms of innovations and fees. As explained in more detail below, firms can:

- leverage an existing customer base from other markets;
- create a new customer base;
- use new or existing payments infrastructure;
- use existing and new technology to enable access to merchants;
- use third-party access provided by PSD2.

Leveraging an existing customer base from other markets:

Providers established in other markets have been able to leverage their existing customer base to enter the payments market. For example, large retailers such as Amazon and Carrefour have leveraged their existing customer base to introduce new digital wallet services for online payments. Similarly, mobile phone manufacturers, such as Apple and Samsung, have leveraged their existing large user bases and phone technology (NFC) to enable payment services.

Facilitated by the growth in tourism, existing payment providers can also leverage on their existing customer base in one geographical market to expand into another geographical market. For instance, China UnionPay has entered the European market through the growing number of tourists from China visiting Europe. As of December 2018, more than 3.3m merchants in 40 European countries and regions accept UnionPay cards, covering more than 60% of card-accepting merchants in Europe.[119] In the same month, UnionPay has also signed a card-issuing agreement with Portugal's largest private bank, Millennium bcp, making it the first European bank that issues UnionPay cards.[120] Moreover, all local ATMs in Portugal already accept UnionPay cards for cash withdrawal, and by the end of 2019, all POS terminals will also accept UnionPay.[121] While the example of Portugal represents a first step in its European expansion, China UnionPay is also making similar advances in other European countries, such as the UK, where it has recently announced the launch of a corporate card in partnership with a local bank.[122]

By leveraging an existing customer base, these firms are able to overcome the traditional entry barrier of network effects and can expand into the payments market.

Creating a new customer base

A number of other providers have been successful in creating a new customer base (e.g. PayPal, Klarna, Sofort and Trustly) by offering a more convenient service to consumers and merchants. New technologies have made this possible, further encouraged by their fast-paced adoption by a new generation of customers.

By developing a sufficiently differentiated product, payment providers have been able to attract a critical user base, which in turn has allowed successful entry and expansion into the payments market.

[119] UnionPay International (2018), 'Chinese and Portuguese state leaders witness UnionPay Card collaboration agreement between UnionPay International and Millennium bcp', 6 December, accessed 27 December.
[120] Ibid.
[121] Ibid.
[122] See, for example, Arnold, M. and Wildau, G. (2018), 'China UnionPay kicks off European expansion with UK launch', *Financial Times*, 16 September. See also PYMNTS.com (2019), 'UnionPay Steps into UK with Prepaid Corporate Cards', 10 January.

Using existing infrastructure to process transactions

Providers can use existing card infrastructure and/or existing interbank infrastructure to process transactions. For example, a PayPal wallet can be linked to credit and debit cards, as well as to a bank current account. This has aided entry as rather than investing in their own payments infrastructure, new entrants can expand successfully by using the relatively open existing payments infrastructure.

Using third-party access provided by PSD2

As explained in section 3, PSD2 will make it even easier for new providers to enter the market by leveraging existing interbank processing infrastructure. Rather than investing in their own processing infrastructure, third-party providers are able to build services on top of the existing infrastructure of the banks. This tactic has been used by entrants such as Sofort prior to PSD2, and is likely to become more common in the future.

6.3 Front-end competition

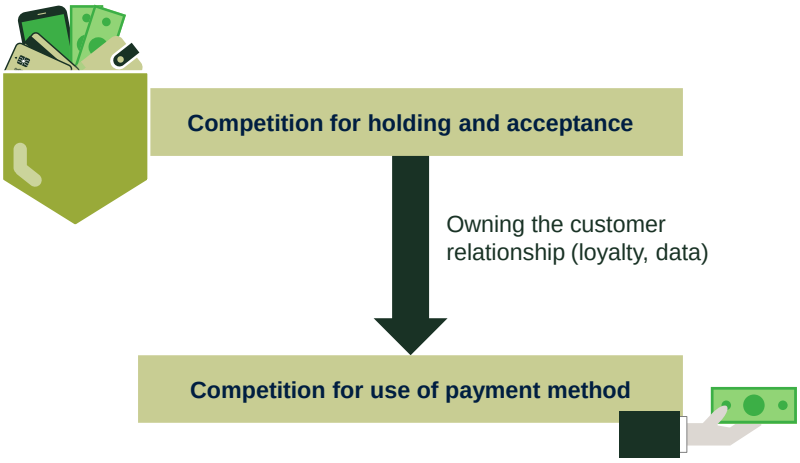
6.3.1 Introduction

Front-end competition refers to competition between payment methods to hold and use on the consumer side, and to accept on the merchant side. Consumers and merchants in the EEA have an increasingly wide range of payment methods to choose from, for both in-store and online transactions.

There are two levels of front-end competition in payments, as illustrated in Figure 6.2.

- Competition for the customer base, whereby payment method providers compete to ensure that merchants accept their payment method (issuers in the case of cards) and that customers hold or have access to their payment method.
- Competition for the use of payment method both online and in store, whereby merchants and payment method providers try to influence the consumer's decision about which payment method to actually use.

Figure 6.2 Levels of competition in payments



Source: Oxera.

6.3.2 Multi-homing is becoming increasingly simple

Consumers and merchants increasingly multi-home, which is further increasing the level of front-end competition in the payments market.

On the customer side, customers increasingly hold or have access to multiple payment methods at the POS. In this regard, multi-homing takes a number of forms, such as ownership of multiple cards, using co-badged cards, the availability of bank transfer-based payment methods and the growth of digital wallets, as explained in more detail below.

Customers can multi-home by owning multiple cards, giving them access to a number of different payment methods at the POS. In addition to multiple card ownership, a single card can offer access to two card schemes in the case of co-badged cards. This is typically the case for domestic card schemes, whose cards also enable the use of international card schemes (e.g. Visa or Mastercard). In France, around 95% of all cards were co-badged in 2016, with a negligible proportion of domestic scheme cards being single-badged.[123] Looking forward, rather than using a card, customers can increasingly also pay using methods based on the interbank infrastructure, for example through a mobile app.

Furthermore, the emergence of digital wallets and the widespread ownership of mobile phones have increasingly provided customers with convenient access to multiple payment methods. For example:

- Apple Pay is immediately available to consumers with compatible Apple devices without the need to download an app;
- Samsung Pay only requires downloading the app on the mobile device;
- digital wallets such as PayPal and Klarna only require simple sign-up procedures.

As a result, in addition to having access to cash, cards and bank account details, which a significant proportion of consumers have, electronic payment methods are increasingly available to consumers, without requiring significant effort to use or sign up to.

On the merchant side, multi-homing is also a common practice, and merchants are able to accommodate a number of payment methods:

- for in-store transactions, new terminals facilitate the acceptance of different payment methods. If merchants wish to accept cards from a number of schemes, they can do so with a single terminal. Furthermore, contactless-equipped terminals allow payments with contactless cards or phones equipped with NFC technology.
- the convenient aggregation of payment methods by the acquirers means that merchants are able to try competing payment methods without forgoing their existing services.
- similarly, providers of gateway services for e-commerce enable merchants to accommodate payment methods from multiple providers.

[123] Mignot, V. (2016), 'Paiement par carte bancaire: vers la fin de l'exception française?', CBanque, 23 June.

6.3.3 Where consumers multi-home, merchant can more easily influence the payment method used

When consumers use multiple payment methods, merchants and payment providers are more able to try to influence which payment method the customer chooses to use, further facilitating front-end competition.

Merchants can influence consumer choices, for example, by:

- **choosing not to accept cards or other payment methods**. In various countries, some retailers do not accept credit cards. In countries with a local debit card, many merchants only accept payments from cards of the local debit card scheme. For example, in Belgium, a number of small and medium-sized retailers only accept debit cards of the local scheme Bancontact.[124]
- **influencing the consumer decision-making at the POS (in store or online)**. Even where merchants offer a range of payment methods, they can often influence consumer choices—for example, by:
  - requiring minimum payments for certain payment types;
  - setting a certain payment method as the default. An example is eBay setting PayPal as the default payment method, when it owned PayPal.[125] Another example is the setting of a preferred card scheme by merchants for card transactions in countries where co-badged cards are widely used. For example, in France, merchants or acquirers set a preferred payment brand for co-badged card transactions (typically the domestic scheme brand Cartes Bancaires). This means that if a co-badged card is used, the preferred brand will automatically be chosen unless actively overridden by the consumer (see section 9 for further details on France).
  - presenting the payment methods in a particular order, or making some of them more visible. For example, some retailers prominently display the PayPal payment method at checkout, and consumers then only get the option of paying by card by clicking on 'secure checkout'.[126]
  - communicating messages (written or verbal) to customers which payment method they prefer.

6.3.4 Multi-homing is changing the form of competition in the payments market in two ways

Multi-homing affects competition for both consumers and merchants.

- On the consumer side, when a consumer holds more than one payment method (e.g. cash, a co-badged card, a digital wallet account, and a bank account allowing for direct credit transfers), payment providers increasingly compete for the actual use of their method by consumers.
- Merchants then become a key influence in the choice of payment method. This increases their bargaining power with respect to payment methods.

[124] RTBF (2018), 'Les commerçants font-ils encore payer un supplément pour les petites transactions Bancontact?', 26 February.
[125] Now that eBay no longer owns PayPal, eBay has entered into agreements with Mastercard and Visa.
[126] There are many examples of this, such as the shoe retailer Schuh in the UK.

Payment methods increasingly compete for use

Payment method providers can influence consumer's choice of payment method in-store and online in a number of ways:

- Payment providers compete by making the use of their payment products as convenient as possible at POS. For physical transactions, this is exemplified by the adoption of contactless technology by card schemes or the use of NFC technology on phones.
- Providers of payment methods also compete by offering additional services to their users. For example, digital wallets such as PayPal and Amazon Pay offer convenience by automatically entering the customer's address details on the retailer's website. PayPal offers its consumer protection against fraud or non-delivery of service by the merchant and Klarna offers 30-day free credit 'with no interest or fees' to its users, under the 'Pay later' functionality.[127]

Bargaining power of merchants increased

- Providers of payment methods may offer specific discounts to merchants or seek to enter into exclusivity agreements with large retailers. For example, in France, card schemes are promoting their brands directly to merchants (e.g. retailers) or acquirers to encourage them to select their network as the default option for payments made using co-badged cards.[128]
- Payment method providers also influence consumer choices in conjunction with merchants by offering permanent or temporary deals to consumers. For example, as of November 2018, a number of online retailers in the EEA encouraged the use of PayPal by offering discounts upon the use of the digital wallet at check out. Examples include getting a 12-months music streaming subscription for the price of 10 in the UK,[129] €10 off purchases from the Galeries Lafayette in France,[130] or a 20% discount off purchases from a cosmetics company in Germany.[131]

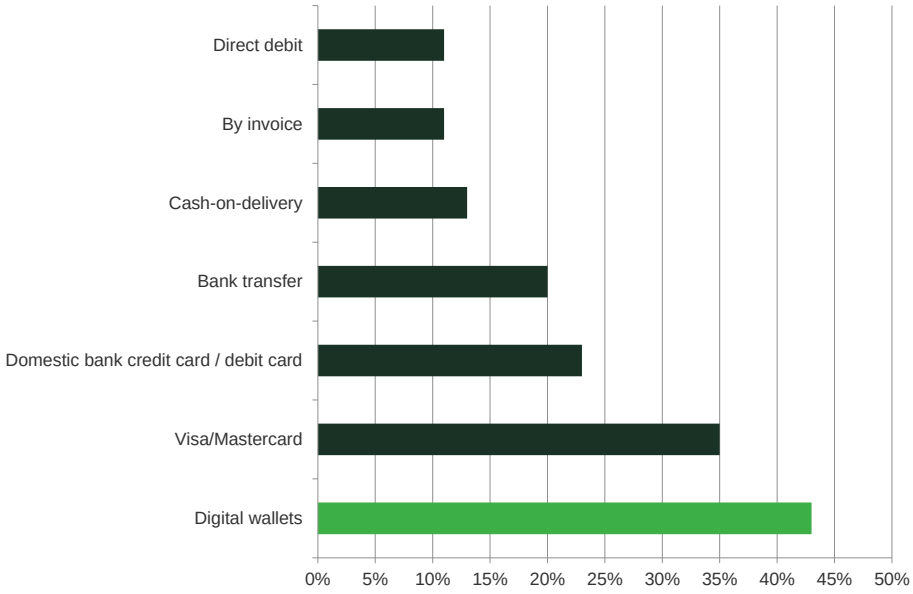
6.4 The rise of digital wallets

As explained in section 6.4, a number of new entrants in the market are digital wallet providers. Digital wallets have become a prominent payment method in Europe for online payments, as shown in Figure 6.3 below.

As presented in section 4, in a number of European countries, digital wallets already represent a significant proportion of online payments (e.g. above 30% in Italy, around 25% for Denmark, Germany, Spain, and the UK, ca. 20% in France, etc.). With the blurring of boundaries between online and physical transactions and the changes to technology (such as payments using mobile phones at bricks-and-mortar merchants), the use of digital wallets will also be made easier beyond e-commerce. With the penetration of smartphones, as presented in section 4 above, the number of mobile wallet users in Europe is expected to increase above 80m by 2022.

[127] Klarna website, 'Pay later'.
[128] PaySys (2016), 'France: war of the card schemes', PaySys report issue, 5 August.
[129] PayPal website, 'Featured offers'.
[130] PayPal website, '33 Offres disponibles'.
[131] PayPal website.

Figure 6.3 Preferred payment methods across Europe for e-commerce, 2017

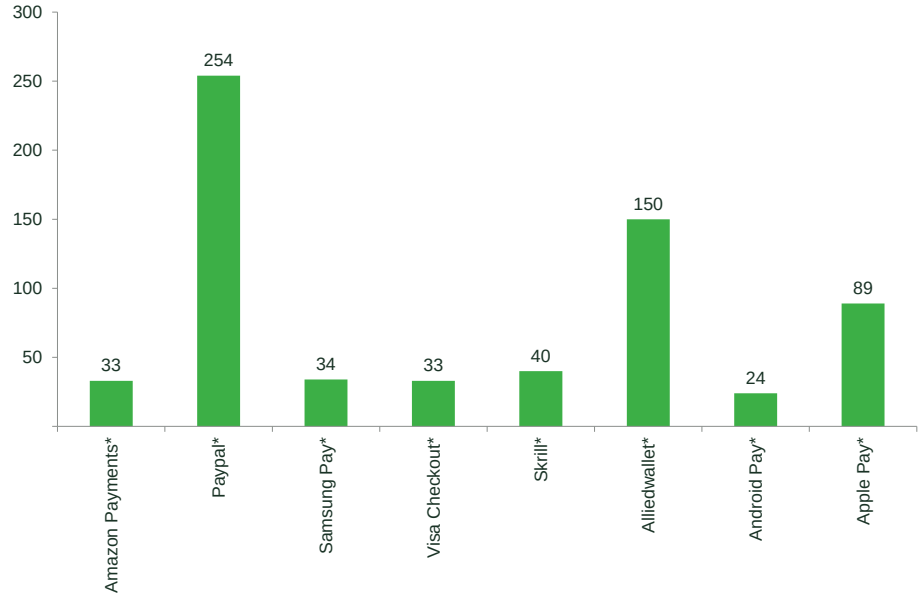


Note: 23,849 consumers across 21 European countries, including Switzerland, were asked: 'Several payment methods exist when it's time to pay online. What is your preferred one?'

Source: DPD European E-Shopper Barometer, September 2017.

Some digital wallets already have acquired a large customer base worldwide, as shown in Figure 6.4. The largest digital wallet worldwide is PayPal, with a customer base of 254m users.

Figure 6.4 Global customer base of digital wallets (m users), 2018



Note: * Number of global customers.

Source: Oxera analysis on information from digital wallets' websites.

6.4.1 How digital wallets are different

We have discussed digital wallets in the previous sections. In this section, we bring together the specific economic features that set this payment method apart from others, such as cards or credit transfer-based methods:

- as their name suggests, digital wallets can **store money or the details** of their users' bank accounts or cards. As such, they can be 'topped up' with an amount of money using the user's bank or card details, or directly linked to the user's cards or accounts to request payment approval and initiation (e.g. PayPal). With the entry into force of PSD2, digital wallets could also initiate credit transfers themselves.
- Digital wallet providers offer their customers **multiple ways of loading the wallet**. Since their customers often have access to multiple payment methods (e.g. a bank account and a debit or credit card), the digital wallet providers are not reliant on just one payment method or infrastructure. For example, in countries such as Germany, most PayPal transactions are supported by using direct debit and credit transfers using the interbank processing infrastructure, rather than the card infrastructure. This is also the case for Amazon Pay in Germany.[132]
- Digital wallet providers are a **user-facing service** with which customers engage and identify as the payment method. For example, when paying with a digital wallet that has been loaded with or linked to their bank details, customers typically identify the wallet as the payment method, as opposed to the bank transfer. Furthermore, digital wallets offer convenient features for their users for single or repeated use, such as storing the details of the consumers on websites, making use of easily accessible log-in details or mechanisms (such as fingerprint identification for Apple Pay or Samsung

[132] Amazon Pay website, 'Kaufen Sie auf tausenden von Websites mit Informationen ein, die in Ihrem mazon-Konto gespeichert sind'.

Pay). These aspects place digital wallet providers at an advantage in terms of 'owning' the relationship with the customers.

- Some digital wallet providers also have the option of **aggregating or internalising** a proportion of transactions, saving transaction fees. For example, when two users have an account with a digital wallet provider, a transfer between them does not necessarily require any interaction with the banks or cards schemes, as it remains purely internal to the digital wallet.

Digital wallets compete with existing payment methods in terms of quality, convenience, and service proposition. For example, PayPal offers consumer protection, and chargeback and refund mechanisms (also for transactions that are 'funded' through credit transfers or direct debits), thereby providing a more secure service than standard credit transfers or direct debits.[133]

6.4.2 Digital wallets not only increase front-end competition, but can also create back-end competition with the payment methods they make use of

As explained above, digital wallets rely on other, underlying payment methods—such as cards or the customer's current account. At the same time, they are also a user-facing service. As such, this makes them an **intermediary player** in the payments value chain, between consumers and other payment methods. When paying with a digital wallet, a card or bank account may still be used to transfer funds. However, even in those cases, these methods are no longer the front-end interface. Instead, digital wallets allow consumers to use these different 'back-end' methods with the use of a single front-end interface, which consumers interact with and perceive as the means through which they pay.

Therefore, digital wallets are a new, compact form of multi-homing where consumers not only have access to multiple underlying payment methods, but can easily switch between them without changing the front-end service they use. This considerably changes the competitive dynamics for payments by adding a new playing field of competition.

For digital wallets, one of the important costs is the fees paid to the underlying payment methods. Competition between digital wallet providers (and between payment methods and digital wallet providers) means that digital wallet providers have a strong incentive to negotiate on the payment methods' fees and/or steer their users towards using the cheaper payment methods to load their wallets.

The bargaining power of digital wallets is related to the size of their user base (customers and merchants) and their ability to steer consumers towards using specific payment methods to load or pay with the wallet. New entrants, such as Amazon, Apple or Samsung, therefore have considerable bargaining power. For example, Apple is progressively increasing the number of banks that enable Apple Pay for cards they issue. When a consumer pays using Apple Pay, Apple receives a share of the interchange fee received by the issuing bank. As such, Apple faced initial reluctance from issuers to accept its service.[134] However, Apple's large base of smartphone owners meant that banks risked forgoing large numbers of transactions or losing customers if they did not offer Apple Pay on cards they issue.

[133] PayPal website, 'How do I request a refund?'.
[134] For an example in France, see Europe 1 website, 'Apple Pay: les banques françaises mettent de côté leurs réticences'.

Digital wallets impose additional, 'back-end' competitive pressure on the payment methods they give their users access to, to load the wallet. This back-end competitive pressure materialises in two main forms. First, digital wallets increase their 'buyer power' while remaining reliant on the underlying payment methods. They can steer consumers towards methods that are the most advantageous to the digital wallet providers. As discussed below, Mastercard and Visa have entered into agreements with PayPal to avoid steering, which illustrates the impact of such practices. Second, digital wallets can reduce their reliance on the underlying payment methods altogether:

- As their customer base grows, they can 'internalise' a higher proportion of transactions as 'on us' transactions, as explained in section 6.4.1. For these transactions, this completely removes reliance on competing payment methods and reduces the total volume of transactions made via these methods.
- With the entry into force of PSD2, digital wallets can also apply for PISP licences, which, by directly linking the wallet to the customer's current account, enable the digital wallet to securely initiate direct debit and credit transfer transactions without requiring authorisation through the bank for every payment, further reducing costs. While digital wallets can already take payment for balance from consumers via bank transfers and direct debits, PSD2 will greatly facilitate their use on a regular, per-transaction basis without requiring the consumer to load any money into the wallet in advance. In the future, this will result in increased competitive pressure on card schemes from digital wallet providers having easier access to alternative ways of funding transactions by using direct debit and credit transfers
- Technology and regulation provide an opportunity for digital wallets and merchants to 'vertically integrate' once they have a sufficient customer base and provide a greater proportion of the payment service themselves. In this context, vertical integration refers to the development of their own transaction-processing infrastructure. This will enable them to impose more competitive pressure on existing infrastructure and payment methods. Early indications of this trend can be seen through Facebook acquiring an e-money and payment institution licence in Ireland in 2016.[135] In the UK, the FCA granted Amazon a payment institution licence in July 2018.[136] Google has also recently obtained payment service provider or e-money or payment institutions licence, respectively in Lithuania and Ireland, Google already had similar licences in the UK.[137] While PISP licences allow the initiation of transactions on behalf of the customer, Payment Service Provider (PSP) licences allow for the actual execution of payment transactions, as well as the issuing of payment instruments.[138] Banking licences, on the other hand, directly allow existing banks to be bypassed. As explained above, a number of digital wallet providers own banking or payment service provider licences.[139]

Overall, these combined changes will strengthen the position of digital wallets with respect to other payment methods such as cards. For example, in 2016 both Visa and Mastercard entered into agreements with PayPal in order to

[135] Hernaes, C. (2016), 'What Facebook's European payment license could mean for banks'.
[136] The licence enables Amazon to offer three types of service: issuing instruments/acquiring transactions, executing payment transactions (no credit line), and executing payment transactions (credit line). See the FCA's register.
[137] *The Irish Times* (2019), 'Google gets go-ahead from Central Bank for payments', 5 January.
[138] For example in the UK, see Schedule 1, part 1 of the Payment Services Regulations 2017.
[139] For example, PayPal has had a Banking licence from Luxembourg since 2007.

'avoid PayPal steering' in the USA. In late 2017, PayPal and Mastercard expanded their Digital Partnership to Europe. As part of the agreement, Mastercard was also to be 'presented as a clear and equal payment option within the PayPal Wallet'.[140]

6.5 Effect on the competitive dynamics

6.5.1 General implications

The entry by new providers in the payment landscape has already led to substantial changes in this market. New providers in the payments market can leverage their position and existing customer base in other customer-facing markets to rapidly develop a base of acceptance and use of their payment services. Furthermore, small differences in the competitiveness of different payment methods, combined with the competitive dynamics described above, can generate rapid changes in the position of providers in the market in terms of relative importance, front-end competition, and back-end competition.

For instance, in the e-commerce space, PayPal is now the most popular payment method in many European countries.[141] Recently, it has continued to expand from online to the physical in-store payments market through the acquisition of iZettle.[142] Klarna, an emerging payment method, has also rapidly gained market share since its launch in 2005; it now has an average e-commerce market share of 10% across Northern Europe.[143] Looking ahead, research suggests that by 2020, Apple Pay could account for one in two contactless payments globally,[144] and that digital wallets and instant (interbank) payments will become so popular that they will significantly erode cards' market shares in the payments for e-commerce in the future.[145]

Existing providers such as banks have responded by introducing their own retail payment methods (bank transfer-based payment method) and card schemes by launching their own digital wallets (e.g. Masterpass and Visa Checkout).

Despite these responses from the incumbents, the high growth experienced by new providers, as presented in section 4, suggests that their potential market share is likely to increase in the future. As shown in the case study below, with the right strategies, these disruptors can gain significant market shares from existing payment providers within a short period of time, completely changing the competitive dynamic in the market.

6.5.2 Alipay/WeChat case study

Alipay and WeChat are two important payment methods in China. They were created by two technology giants—Alibaba and Tencent—that did not start out as payment service providers. Alipay was originally created by Alibaba to process online payments for its online shopping platforms (Taobao and Tmall, which are the largest in China). The payment function WeChat was created by Tencent. WeChat is also China's largest social media and messaging app.

Both have entered the payments market by leveraging their existing customer base. Through Alibaba's platforms, Alipay has access to more than 500m

[140] Mastercard (2017), 'Mastercard and PayPal Expand Digital Partnership Globally', press release, 5 October.
[141] E-commerce News Europe (2018), 'Top 3 of payment methods per European country', 14 February.
[142] Seeking Alpha (2018), 'PayPal To Acquire iZettle For Strategic Expansion', 18 May.
[143] 'Klarna statistics', accessed 4 January 2019.
[144] TechCrunch (2018), 'Apple Pay to account for 1 in 2 contactless mobile wallet users by 2020', 30 July.
[145] Ovem (2017), 'Instant Payments and the Post-PSD2 landscape', p. 11.

active customers.[146] In 2018, WeChat had more than 1bn active users.[147] This means that even before the launch of their respective payment services, both companies had already captured enough customers to overcome any potential barriers due to network effects. Indeed, the large existing customer base is a key factor in the success of Alipay and WeChat.

Until recently, both Alipay and WeChat only connected directly with banks, bypassing China UnionPay, the central clearing system.[148] Due to regulatory concerns about the lack of transparency on transactions through third-party providers, Alipay and Tenpay have now established connections with the newly created NetsUnion Clearing Corporation (NUCC) as well as China UnionPay.[149]

After establishing themselves as online payment providers, WeChat and Alipay expanded into the in-store payments market through the following means.

- They have increased the number of ways that consumers can use the new payment method. Alipay and WeChat have partnered with the largest ride-sharing/taxi apps, retailers, utility companies, and, more recently, public transport companies.[150] These partnerships have had a significant impact in changing consumers' payment habits.
- They have improved the overall user experience for payment with their respective mobile apps. For instance, Alipay has been experimenting with facial recognition technology to improve the payment experience through easier authentication.[151]
- They have provided monetary benefits to incentivise users to adopt their payment methods. Both companies have spent millions on cashback and rewards for consumers who use their payment methods.[152]

These strategies helped Alipay and WeChat to become 'super apps' that provide consumers a one-stop solution for their daily activities—from paying tuition fees, booking medical appointments, and tracking physical activities to playing games, shopping, and socialising.[153] Such integration enabled Alipay and WeChat to deepen their relationships with customers in a way that traditional payment providers would find difficult to achieve.

The success of Alipay and WeChat has caused significant changes to China's payment landscape over the past decade. China used to be a cash- and card-based society; in 2010, 61% of Chinese retail transactions were paid in cash and 35% were paid via card,[154] with the majority of the latter going through China UnionPay, the domestic card scheme.

By 2017, the landscape had changed significantly. One study estimated that 23% of the payments made that year were either online or through mobile

[146] Edgar, Dunn & Company (2018), 'Advanced Payments Report 2018'.
[147] Ibid.
[148] Korella (2017) 'Cash and cards vs smartphone? - Outcomes of a comparative study on retail payment behaviour in China and Germany'.
[149] Ibid.
[150] TechAsia (2017), 'How WeChat Pay become Alipay's largest rival'.
[151] *South China Morning Post* (2018), 'Alipay rolls out world's first 'Smile to Pay' facial recognition system at KFC outlet in Hangzhou'.
[152] *South China Morning Post* (2018), 'China's biggest Internet firms offer millions, keeping users glued to their apps', 7 February.
[153] McKinsey Global Institute (2017), 'China's Digital Economy a Leading Global Force', August, pp. 12–13.
[154] Better than Cash Alliance (2017), 'Case study: Social Networks, e-Commerce Platforms, and the Growth of Digital Payment Ecosystems in China: What It Means for Other Countries', April.

phones.[155] Card payments made up approximately 41% of the market, whereas the amount of cash payments declined steeply to 30%.[156]

These changes happened over a remarkably short period of time. Even more remarkable is the speed with which WeChat caught up to Alipay; while it took the latter five years to reach 100m customers,[157] WeChat's launch of red packets during Chinese New Year in 2014 enabled it to win millions of customers over just a few days, going on to gain 100m customers within a year.[158]

This case study has implications that are highly relevant to the European market. The success of Alipay and WeChat demonstrates not only that technology giants that have large existing user bases are well placed to disrupt a country's payment landscape, but also that they can become so successful that the payment landscape will change completely. Moreover, with the right strategies, these technology giants are capable of winning significant market shares within a very short period of time.

Although the Chinese consumer preference and the broader regulatory environment in China also played a part in the success of Alipay and WeChat, the competitive forces behind the ultimate shift are already active in Europe. These include, for example, network effects in other markets, smartphone penetration driving multi-homing, the take-off of e-commerce, and the increasingly blurring boundaries between online and physical payments. In the next section, we reflect on some specific impacts that these trends could have.

6.6 Forward-looking trends

The dynamics outline in this section mean that establishing economic forecasts are particularly challenging to formulate in this market. As explained above, the competitive dynamics in the payments market mean that two closely competing payment methods may reach a tipping point, resulting in large adjustments in market share (see section 6.5.2 for the example of Alipay and WeChat). By contrast, fierce competition between two competitors in terms of innovation, quality and convenience may result in little change in their relative position in terms of market shares. Moreover, competition in the market is one driver for change in the payment industry. Technology, regulation, and business development in other industries will continue to be other important drivers of change and the interaction of these drivers will make it more difficult to predict the competitive dynamics in the payments industry. This makes market shares inherently difficult to predict. Indeed, the ECB commented that predicting what the payments landscape will look like in the future is 'perhaps better left to science fiction writers'.[159]

Nevertheless, we consider that some aspects of the likely evolutions in the market can be predicted with reasonable confidence. We set out these aspects in this section. In particular, we discuss the following future trends.

- **The increasing role for providers not specialising in payments**. A provider's ability to attract users may no longer depend solely on its ability to provide a smooth payment experience, as payments are likely to be offered

[155] Ibid.
[156] Ibid.
[157] McKinsey Global Institute (2017), 'China's Digital Economy a Leading Global Force', August, p. 12.
[158] TechAsia (2017), 'How WeChat Pay become Alipay's largest rival', 20 April, accessed 4 January 2019.
[159] European Central Bank (2018), 'The future started yesterday', 3 October.

alongside, or as part of many other services. Large non-payment-based companies will therefore play an increasingly important role in payments.

- **Further increases in the ability of merchants to steer payments**. Merchant are likely to have greater power in influencing consumers' choice of payment method, especially through non-traditional payment channels such as those facilitated by the Internet of things (IoT). A consumer's loyalty to a particular retail brand or product can make them agnostic towards the payment option, which gives greater bargaining power to merchants that use external providers to process payments and can direct consumers to a default or preferred payment method. This, in turn, can be expected to further intensify competition at the 'back end', as described in section 6.4.2.
- **More online payments providers expanding to physical transactions**. The line between online and physical payment transactions and experiences becomes increasingly blurred. Examples include paying for an Uber driver via the app at the conclusion of the journey, and online orders picked up in store. This means that the larger providers of payment services will need to compete in both online and physical payment methods in order to maximise network effects and succeed in the long run.
- **Innovation and increased competitive pressure from providers making use of PSD2**. As explained in section 6.4.2, PSD2 will give existing digital wallet providers an additional and cost-efficient way of processing payments and will facilitate the entry of new providers. Innovative propositions and business models from these providers will continue to exert competitive pressure on existing providers. Infrastructure is already in place to support this competitive pressure, and to the extent that future regulatory developments may be expected, they are more likely to support this direction of travel.[160]
- **The possibility of new infrastructures**. Technological advancement and regulatory developments may create alternative payment infrastructures. To the extent that the new infrastructures are cheaper and better than the existing ones, they can also exert competitive pressure on the card schemes and ACH systems. Existing providers with sufficiently large customer bases, as presented in section 6.4, could be a catalyst for such developments.

As a result of these trends, competitive pressure will increase in the payments market. Thus providers unable to achieve sufficient scale in terms of acceptance or user base may look to expand through consolidation. It can also be expected to incentivise greater innovation—by individual firms or, in some cases, through partnerships between existing firms. Each of these trends is explained in more detail below.

6.6.1 The increasing role for providers not specialising in payments

Payment is an integral part of the experience offered to customers and an important cost item for some merchants. For some large technology firms, payment is a complementary service to the firm's main offering. As a result, many companies are likely to seek to provide payment services as part of their offering and to become payment service providers themselves. As noted above, these companies are able to leverage their strengths in other markets to establish themselves in the payments market. Consumer electronics firms

[160] For example, see European Central Bank (2019), 'Promoting innovation and integration in retail payments to achieve tangible benefits for people and businesses', speech by Yves Mersch on 7 February.

such as Apple and Samsung are examples of this, while Google, Facebook, and Amazon have also entered the payments market (as discussed in section 6.4.2). Other large retailers and social media companies are also likely to enter the payments market in the future.

The non-payment service offerings from these companies can affect their ability to compete in the payment industry. This is because consumers may prefer a provider that has a strong retail brand and offers other services alongside its payment services (such as social media) over a provider that only offers payment services. The competitive advantage offered by non-payment services imply that large, non-payment-based companies will play an increasingly important role in the payments industry.

6.6.2 Further increases in the ability of merchants to steer payments

As explained in section 6.3, consumers increasingly multi-home, which enables merchants to influence the choice of payment method more easily. Merchants whose customers have strong brand loyalty will have a greater power in steering their customers to their preferred payment method.

Amazon provides an example. Amazon has developed 'just walk out' technology that allows shoppers at Amazon's physical stores to buy their groceries without physically checking out the items they wish to purchase; the payment is automatically deducted from the shopper's Amazon account.[161] As the process no longer requires a POS authorisation, customers will pre-select their payment option before the actual sale takes place. As a result, no additional decision—for example, whether to use cash, card, or electronic wallet—is required for in-store payment. By linking the payment to one's Amazon account, the merchant in this case can steer customers to their choice of front-end payment method without the consumer needing to make a decision for each individual sale. That said, Amazon currently does not influence a customer's choice of payment method for topping up their Amazon wallets—i.e. at the back end. As explained in section 6.4.2, as a digital wallet provider, Amazon could steer the choice of top-up method. If given the incentives to do so (e.g. because of favourable deals offered by back-end payment providers or low-cost providers), this is a realistic prospect. In any case, this could reduce the costs to Amazon through negotiation with the different payment providers.

The roll-out of Internet of things (IoT) technology is likely to further enhance a merchant's steering power. The IoT refers to a concept of connecting all devices everywhere in real time. Many smart technologies also fall under the umbrella of the IoT. Examples include Amazon buttons that allow customers to reorder washing powers by pressing a button; dishwashers or washing machines that automatically order powder or detergent,[162] wearable devices that monitor health and automatically order medication, or smart fridges that monitor the contents of the fridge and automatically order milk when it is about to run out.

Payments related to IoT technology usually only require initiation at the beginning and execute subsequent payments using the same payment choice. Similar to the example of the Amazon grocery store, smart devices have to be connected to a payment method to enable automatic purchases. These initiations are usually one-off events—consumers do not usually switch

[161] BBC (2018), 'Amazon opens a supermarket with no checkouts', 22 January.
[162] Busch, A. (2019), 'LG ThinQ: how your washing machine will learn', *Whitsundaytimes*, 8 January.

payment methods unless there is an external trigger (such as a change in card or bank account details).

To the extent that IoT merchants are able to steer customers (through nudges, rewards, or setting defaults) when making initial payment decisions, the IoT increases that steering power because the consumer does not make an active choice each time (i.e. it creates inertia). As a result, successful initial steering from the merchant would determine the subsequent transaction volumes through different providers.

6.6.3 More online payments providers expanding to physical transactions

The development of e-commerce has significantly blurred the boundaries between online and offline sales; for example, it is now possible to buy clothes online and pick them up in store. Meanwhile, online retailers such as Amazon and Alibaba are experimenting with bricks-and-mortar stores. The boundary between online and offline retail market will continue to blur in the future.

As set out in section 6.3, consumer and merchant multi-homing with regard to payment methods is increasing, a trend that we would expect to continue in the future. As the boundaries between online and physical transactions become less distinct, it can be expected that it will be become less attractive for consumers to hold separate favoured payment methods for online and physical transactions; instead, they would expect their favoured payment method to be available in both contexts.

Moreover, the network effects described in section 2 will continue to apply. This means that payment services will be able to improve their competitive position by being active in both online and offline markets in order to maximise their acceptance network and user base, and thus the positive network externalities.

As a result, payment providers will try to offer both online and physical payments with equal convenience. This represents the continuation of a trend observed in its early phases: PayPal is expanding into the physical in-store purchases with the acquisition of iZettle (see Box 4.12); Visa and Mastercard are integrating their payment buttons to compete more effectively in the online market.[163] This trend will continue in the future through different channels, including the use of digital wallets based on a smartphone that can be used for both (e.g. Apple Pay) and the availability of online payment services used in-store (e.g. through QR code readers).

6.6.4 Innovation and increased competitive pressure arising from providers making use of PSD2

Although companies with a large existing customer base and strong brand loyalty can have a competitive advantage in the payments market, this does not mean that smaller providers cannot exist alongside them. In fact, as mentioned above, PSD2 will facilitate the entry of new providers with no pre-existing customer base but innovative propositions. The payment methods explored in this report largely reflect entry into the payments market prior to the implementation of PSD2. In this way, the full impact of PSD2 is yet to be seen.

The advent of PSD2 will further catalyse the payment initiation service trends we have observed, in addition to encouraging the development of entirely new

[163] Cards International (2018), 'Visa and Mastercard to integrate online payment buttons', April 23.

payment methods. PSD2 is likely to enable the development of new propositions that build on existing payment infrastructure (particularly ACH infrastructure) and offer services that link to the same access point that consumers use.

These factors are expected to place increasing pressure on existing payment methods and providers to innovate in order to avoid losing customer relationships. We would expect this to have two consequences.

- It will incentivise established payment and digital wallet providers to improve the quality and reduce the costs of their services in order to maintain their customer base. Such a development can be expected whether or not new entrants succeed in winning significant market share from established providers (i.e. the threat of entry can generate incentives).
- The establishment of a large number of innovative payment providers with smaller customer bases can be expected to be followed by increased collaboration and consolidation of providers. Larger institutions may leverage on smaller Fintechs to improve internal processes and customer experience.[164] In this way, innovations introduced by smaller providers can be made accessible to consumers across the payments industry, and new entrants will have a route by which they can establish the scale needed to compete in the payments market in the long term.

6.6.5 The possibility of new infrastructures

Technological progress increases available choices of payment infrastructures. Figure 3.5 outlined the types of back-end infrastructure that process electronic payments, including three-party and four-party card schemes, ACH, and on-us transactions. Blockchain provides a peer-to-peer payment infrastructure, which is an alternative option to the existing infrastructures. Currently, many providers (such as Mastercard, Visa, American Express and Bank of America) are already using the Blockchain technologies, primarily in cross-border transactions.[165] Wider applications of Blockchain in payments in the future could constitute alternative payment infrastructure, which would put competitive pressure on the existing ones.

Regulatory initiatives can also create alternative payment infrastructures. For example, the launch of the SEPA Instant Credit Transfer Scheme and TIPS (TARGET instant payment settlement) can provide a compelling alternative to the existing payment infrastructures.[166] The expected increase in interoperability could help European providers to compete with international providers.[167]

Further technological progress and other regulatory developments (both within the EU and outside the EU) could provide additional alternatives to the existing infrastructures. Moreover, to the extent that these new infrastructures are cheaper than existing ones and have competitive offerings on features such as speed and security, they will exert competitive pressure on existing systems. As explained in section 6.4, digital wallet providers with large customer bases could be vectors of such developments.

[164] European Banking Association (2019), 'EBA report on the impact of Fintech on payment institutions' and e-money institutions' business models', July, p. 9.
[165] Forbes (2018), 'Blockchain continues to advance into the payment environment', 20 June.
[166] European Central Bank (2018), 'The future started yesterday', 3 October.
[167] Ibid.

6.6.6 Conclusion

In other parts of this report, we have identified existing and emerging trends in the payments landscape. As explained above, we would expect these trends to continue and strengthen in the near future. As a result, we would expect further increases in competition between payments across Europe—to the benefit of consumers and merchants. Similarly, from the perspective of customers and merchants, competition will take new forms, such as increased influence from merchants or an increase in back-end competition.

However, it is unclear how these trends will play out and what impact they will have in terms of the relative importance of payment providers. As explained in this report, the dynamics in the payment sector are such that highly competitive outcomes do not necessarily lead to large adjustments in market share. The presence of some new entry, and the potential for large and rapid market share adjustments mean incumbent providers driven through competitive forces into 'running to keep still—i.e. pricing and innovating in a competitive way to maintain their existing positions.

Nevertheless, it is also clear that if incumbent providers are not successful in such a competitive strategy, there is realistic potential for large market share adjustments. A 2017 study found that digital wallets and instant payments would become so popular that they would make up 57% of the market for e-commerce payments by 2027 (as compared to 37% in 2017). Effectively, this forecasts that the percentage of e-commerce spending via cards will reduce from 45% to 23%.[168] Whether or not adjustments of this scale materialise, it can be expected that digital wallet providers will take greater importance, and regulatory developments such as PSD2 and the advent of fast payments are likely to spur growth for ACH-based payment methods.

Naturally, while these trends are observed across Europe, the individual circumstances within member states will continue to be influenced by specific features of local markets and regulations. We explore a number of these features in the case studies presented in the following sections.

[168] Ovem (2017), 'Instant Payments and the Post-PSD2 landscape', p. 11.

7 Competition for the provision of payment services in France

7.1 Introduction and key messages

- Traditional payment methods (cash and cheques) are still widely used but are on the decline. According to the Banque de France, cards are the preferred payment method of the French. There is regulatory drive (Comité National des Paiements Scripturaux) to increase the use of electronic payment methods including cards and methods based on interbank transfers. France is progressively catching up with the leading member states for adoptions of new payment methods (e.g. contactless payment).
- The French market is characterised by the strong position of the local card scheme, Cartes Bancaires (CB), which accounts for more than 80% of domestic physical transactions (whether by value or number). Due to its legal status as a not-for-profit organisation, CB can compete on favourable terms with other payment methods and card schemes.
- Co-badging on cards between CB and an international card scheme is common; this can be understood as a form of multi-homing. The scheme that consumers use for physical payments is largely determined by the 'default' option and the terminal, and this drives price competition between schemes for the largest merchants/acquirers, who can influence this default.
- Non-card electronic payment methods are expected to place increasing competitive pressure on card schemes. New services with the ability to make use of interbank payments are growing through interbank cooperation. Examples include PayLib, which currently uses interbank payments for P2P transfers, but is working on instant payment solutions for POS sales. Other strategies for new providers include the use of established brands and user bases in other sectors (for example, Apple Pay), and for challengers to leverage common acceptance infrastructure (such as Lyf Pay making use of QR code readers catering for inter-regional consumers).

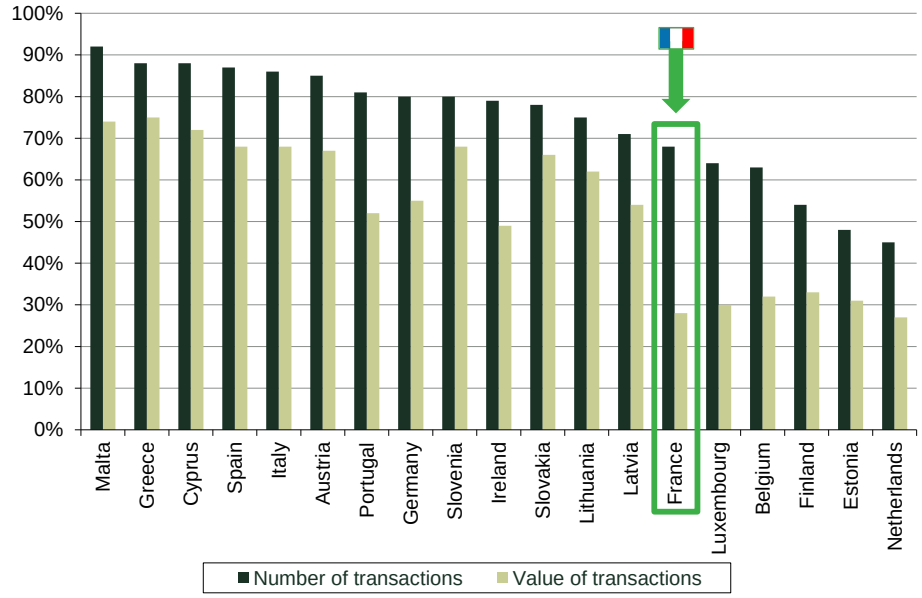
7.2 Market background

7.2.1 Traditional payment methods in France

While still important as a payment method, cash in France is used less than in countries in Southern Europe or in Germany. As shown in Figure 7.1, 68% of physical transactions were in cash, compared to a eurozone average of 79%.[169] France is among the countries with the lowest cash usage in terms of number of physical in-store transactions. Furthermore, it displays the second-lowest proportion of cash use in terms of *value* of physical in-store payments, behind the Netherlands. This reflects the fact that cash is used mainly for smaller payments. The average value of in-store cash transactions in France was among the lowest in the eurozone (c. €7.50 compared to an average of €12.40), while the average in-store transaction value for cards in France was above the eurozone average.[170]

[169] Hesselink, H. and Hernàndez, L. (2017), 'The use of cash by households in the euro area', Occasional Paper Series No. 201, November, p. 20.
[170] Ibid., pp. 20–21.

Figure 7.1 Share of cash transactions per country (eurozone) in-store, 2016



Source: Oxera analysis on data from the ECB.

One distinguishing feature of the French payment landscape is the importance of cheques as a payment method. In 2014, 68% of all cheques in the EU were issued in France.[171] Furthermore, in 2016, c. 10% of non-cash transactions were carried out by cheque. However, both the number and total amount of cheque transactions are rapidly decreasing. Between 2011 and 2016, the number of cheque payments decreased by c. 30%, while their total value decreased by 13%.[172] One of the factors contributing to the relative popularity of cheques is that they are still free of charge to consumers.[173]

7.2.2 Change in payments is driven by technology

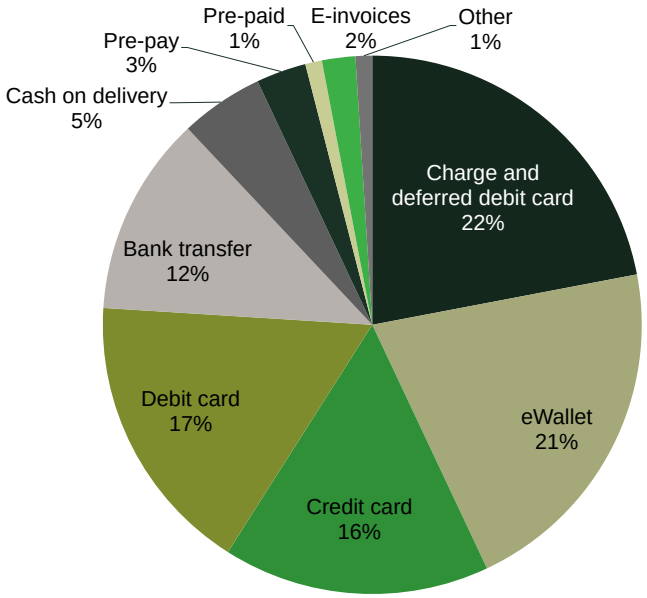
As in other European countries, the French market for payment services is rapidly evolving, with changes driven by several factors, similar to the situation across the EEA. One factor is the rise of online shopping (see section 3.4): nine out of ten French consumers purchase online. Furthermore, online shopping now represents 7% of all transactions (excluding food purchases), and this market is growing at a rate of 20% per year.[174] For certain types of product, this proportion is even higher: 45% for cultural products (e.g. books), 23% for high-tech home products, 18% for home appliances and 13% for clothing.[175]

With the rise of online shopping, a number of new providers are entering or emerging in the French payment landscape. Figure 7.2 presents the split of

[171] European Payments Council (2016), 'The French payment landscape', infographics.
[172] This indicates that the decline in the number of transactions pertains mainly to smaller transactions. This is because the use of cheques is decreasing faster for bricks-and-mortar merchant transactions, whereas it is still somewhat popular for larger, frequent payments, such as rent, utilities and subscriptions.
[173] For a number of years, French banks have advocated a regulatory change allowing them to charge consumers, a proposition opposed by consumer defence organisations. As a result, cheques are still free of charge to consumers. For an example of this discussion, see Que Choisir (2012), 'Moyens de paiement – la gratuité des chèques sur la sellette', 2 April.
[174] Société Générale (2018), 'L'émergence de nouveaux moyens de payer'.
[175] La Fédération e-commerce et de la vente à distance (2018), 'Les chiffres clés', June, statistics collected with GfK, IFM, Ipea and Nielsen.

online payment methods in 2017. While card-based payments account for 55% of the total value, digital wallet payments also have a significant share (21%).

Figure 7.2 Breakdown of online payment methods in France (by value), 2018



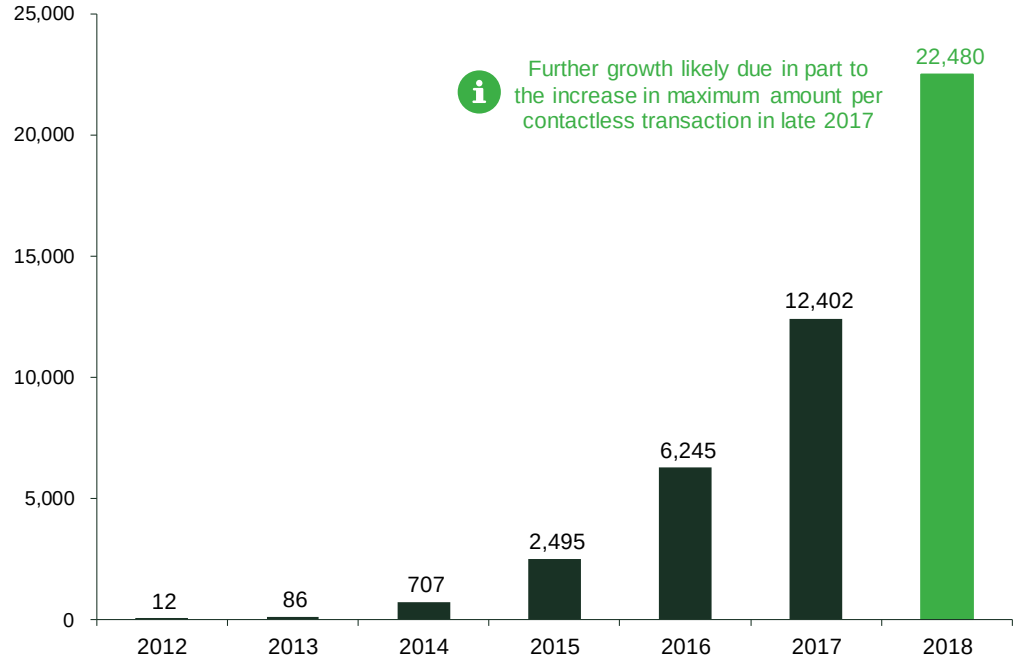
Note: Deferred debit cards were historically known as 'débit' cards in France. However, according to European standards, any card that entails deferred payment of the transaction amount is considered to be a credit card. As such, the European term of 'credit' card also covers deferred debit cards and charge cards. See Cartes Bancaires CB (2016), 'Understanding the Categories of Cards—Demystifying the terminology of European legislation', February.

Source: Oxera analysis based on Worldpay (2018), 'Global Payments Report', November.

Evolving technology has also contributed to the emergence of new payment methods. Introduced in 2012, and after slow initial growth, contactless payment technology is now well-established among French consumers: seven out of ten adults have used it, and 44% report doing so more than twice a month.[176] In October 2017, the maximum amount for contactless payments was raised from €20 to €30 per transaction.[177] Between 2012 and 2018, the value of contactless payments in France increased from €12m to €22.5bn.[178] According to forecasts from RBR, the value of contactless payments in France is expected to reach €90bn by 2022.

[176] Affinion International (2018), 'Les Français face aux nouveaux moyens de paiement', 29 March.
[177] Mignot, V. (2017), 'Carte sans contact: le plafond de paiement passe à 30 euros', cBanque, 2 October.
[178] Groupement des cartes bancaires CB (2020), 'CB en chiffres'.

Figure 7.3 Evolution of the amount of contactless payment in France (€m), 2017



Source: Oxera analysis on Groupement des Cartes Bancaires CB data.

According to RBR forecasts, France exhibits a lower use of contactless payments as a proportion of card payments than the Western European average. However, it is also experiencing faster growth, and is expected to be above the Western European average by 2022.

As explained above, the French tend to use cash for smaller amounts at bricks-and-mortar merchants. However, the increasing popularity of contactless payments may start to challenge this, given that contactless tends to be used for smaller transactions.

7.2.3 Changes in the French regulatory environment

In April 2016, France created a committee of non-cash payments (Comité National des Paiements Scripturaux, CNPS). Chaired by the Banque de France, the CNPS aims to represent both the demand side and the supply side of payments (i.e. payment users and payment providers), as well as public authorities.[179] Among others, priorities of the CNPS include encouraging the development of contactless card and mobile phone payments, as well as facilitating the use of direct transfers, including fast payments: SEPA Instant Credit Transfers (SCT Inst).[180]

In France, providing payment services (which include but are not limited to payment initiation services) requires the granting of the status of 'payment service provider' (établissement de paiement) by the independent banking and insurance supervision authority, the Autorité de Contrôle Prudentiel et de Résolution (ACPR), which is backed by the Banque de France.[181]

[179] Banque de France (2017), 'La surveillance des moyens de paiement scripturaux et des infrastructures des marchés financiers', 31 December, p. 35.
[180] Banque de France website, 'Mission et organisation'.
[181] Autorité de Contrôle Prudentiel et de Résolution (2017), 'The ACPR's Domestic and European Responsibilities', 21 November.

As is the case in many other European countries, France is undergoing changes in the regulation of payments, influenced by initiatives taken at the European level. The full dispositions of the second Payment Services Directive (PSD2) were transposed into French law in August 2017. A series of technical security standard requirements for PISPs and AISPs became applicable from September 2019.[182] According to the ACPR's register, as of February 2019, five PISPs were approved by the ACPR, and 19 were approved by other authorities (mainly the UK's FCA or the Bank of Lithuania) and accepted in France through European passports.[183]

With the relative importance of cards as a payment method (see section 7.4 below), France has a developed market for electronic payment, combined with a strong domestic card scheme. In addition, the technical and regulatory developments described above contribute to the emergence of new trends in the payments market. This has important implications for the dynamics of competition between payment methods.

7.3 Competition between card schemes in France

7.3.1 The multiple functions of the domestic card scheme, Cartes Bancaires

In France, the local card scheme, Cartes Bancaires (CB), run by Groupement des Cartes Bancaires CB, is central to the value chain. In 2017, 68.3m French cards had the CB brand, which represents close to one card per inhabitant.[184] In 2014, around 95% of French-issued cards had the CB brand.[185] CB is an interbank network founded, owned and operated by French banks. Banks also own the interbank processing network STET, which processes CB transactions.[186] Groupement des Cartes Bancaires CB, is characterised by its status under French law as a 'Groupement d'intérêt économique' (GIE). Under French law, GIEs are groups of pre-existing firms, and the objective of a GIE cannot be to generate profit for itself.[187] We understand that the banks run CB as a cost centre.

CB has a wider role in France than that of a card scheme. Via its subsidiary, PayCert, CB is responsible for the technical and security certification of payment products (e.g. terminals) in France (including products developed by international schemes such as Mastercard or Visa).[188] More generally, this means that CB plays a large role in acceptance management in France. For example, the communication protocols between terminals or gateways and the acquirers are defined according to CB-developed standards and formats (CB2A), including for transactions with cards that are not co-badged.[189]

7.3.2 Co-badging and the prevalence of the local scheme: CB

The vast majority of cards with the CB scheme are Mastercard or Visa cards, co-badged with CB. In 2017, there were around 5m Visa-only and Mastercard-

[182] ACPR (2018), 'De nouveaux acteurs régulés dans les paiements', September.
[183] ACPR (2019), 'Registre des agents financiers - Établissements autorisés par l'ACPR à fournir les nouveaux services d'information sur les comptes (service 8) et d'initiation de paiement (service 7) en France dans le cadre de la DSP2 (Directive UE 2015/2366) et établissements agissant en France pour ces mêmes services dans le cadre du passeport européen'.
[184] Groupement Cartes Bancaires CB (2018), 'Chiffres clés'.
[185] Adyen (2015), 'France acquiring guide', July, p. 1. According to estimates from Mastercard, this proportion is currently very similar to that in 2014—94% of cards would now be co-badged.
[186] Since 2016, CB owns a 40% stake in STET. See STET (2018), 'Board Members'. Groupement des Cartes Bancaires CB (2018), 'What is CB?'.
[187] Article L251-1 of the French Code de Commerce.
[188] PayCert (2018), 'Certification within the SEPA'.
[189] Banque de France (2007), 'Annual report of the observatory for payment card security', p.31.

only cards, compared to roughly 68.3m of cards with access to the CB scheme.[190] In 2013, only around 0.8% of all cards with the CB scheme were CB-only.[191] This prominence of co-badging originated with the need for an international payment solution for CB cardholders, CB being a scheme for domestic payments only.

A co-badged card can be used to make a payment through the CB network or the Mastercard/Visa network. Until 2016, the choice of network was left to the merchant and the vast majority of domestic card payments made with co-badged cards were routed through the CB network. According to data from RBR, in 2016 CB payments represented more than 85% of physical in-store payments, whether considering value or number of transactions.[192] A statement by Dutch acquirer, Adyen, illustrates this ordering of preferences on the acceptance side:

> Co–branded French cards allow us to have two acquiring routes and build a back-up routing functionality. When incidents occur on the primary route (Carte Bancaire for instance), traffic is automatically routed through the back-up route (international acquiring).[193]

Since June 2016, the choice of processing infrastructure has theoretically been up to the consumer, by virtue of the IFR. In practice, however, for physical in-store payments, the choice of network is guided by merchants and acquirers, who can 'preselect' a default preference. In contrast, cardholders generally need to make an active decision to change the network, by selecting a series of options on the terminal to override the default settings. These options are not presented prominently on terminals.

We understand that most consumers are not aware that they can actively make a choice. Therefore, in practice, merchants and acquirers largely decide which network to use. Furthermore, even if consumers are aware that they can override the merchant's or acquirer's pre-selection, there is generally little incentive for consumers to do so,[194] given that the process of changing the preference represents an inconvenience to users.

7.3.3 Competition between schemes

The discussion above makes it clear that CB is the largest card scheme in France, with nearly all cardholders carrying a CB card, and little consumer engagement with respect to choice of payment scheme at the POS. Challengers such as Mastercard and Visa use various methods to compete with CB, including:[195]

- **at the cardholder and issuer level**: discounts and bonus programmes to cardholders through issuers, and incentives to issuers to issue single-badged cards;

[190] PaySys (2017), 'Acquiring ecosystem & scheme competition – Italy, France, Switzerland, Spain, Belgium', 3 February. According to Mastercard, the vast majority of these cards are Mastercard-only (c. 4.8m).
[191] Autorité de la Concurrence (2013), 'Décision n°13-D-17 du 20 septembre 2013 relative à des pratiques de Mastercard relevées dans le secteur des cartes de paiement', 20 September, para. 19,
[192] RBR (2017), 'Global payments cards data and forecasts to 2022'.
[193] Adyen (2015), 'France acquiring guide', July.
[194] The Interchange Fee Regulation means that CB, Mastercard and Visa all apply the same interchange fee and are limited in the incentives they can provide to issuers, leading to little differentiation in issuer rewards across the three schemes.
[195] PaySys (2016), 'France: War of the Card Schemes', 5 August, p. 2.

- **at the merchant and acquirer level**: favourable deals offered to large merchants (such as supermarket chains) or acquirers to incentivise pre-selection of proprietary networks.

At the issuer and cardholder level, international schemes can try to incentivise issuance of single-badged cards (i.e. compete for card holding rather than card use). However, the incumbency advantage enjoyed by CB in France in terms of brand recognition and the limitations on the four-party scheme to offer issuer incentives above those of CB (a consequence of the IFR) mean that this is unlikely to be successful in practice.[196] At the same time, single-badged CB cards are also unpopular owing to the geographic limitations on their use.

For these reasons co-badged cards are the most popular card type in France, and are likely to continue to be so. This has important implications for the dynamics of competition between card schemes, as it is a form of a more general phenomenon described in sections 2 and 6: multi-homing. It means that a very high proportion of cardholding consumers in France have access to at least two payment card schemes, but that, in practice, the influence in terms of which scheme gets used lies primarily with the acquirers and merchants.

As explained in section 6.3, multi-homing can place more weight on the role of acquirers, merchants and consumers for competition between payment methods. In the particular case of co-badged cards in France, a consequence is that merchants and acquirers have considerable power when it comes to determining which of the co-badged schemes is used in practice.

Therefore, for challenger international schemes to compete with CB, the most effective approach is to encourage merchants and acquirers to promote or pre-select the use of their scheme. This means that international schemes need to offer competitive acceptance/acquiring services packages to acquirers and merchants.

Commercial price competition with CB at the merchant and acquirer level may be inhibited for international schemes due to the non-profit nature of CB's scheme activities. This would lead to an expectation that CB's scheme fees were very low relative to commercial benchmarks, and we understand this is the case in practice. Indeed, for independent card schemes, the scheme activity must be profitable for the company to cover its costs and fund investments, given that the scheme activities represent the core of the company's activity. However, for a scheme owned by banks, with a non-profit legal status, the scheme activities need to cover their own costs only, and could temporarily be loss-making, with the scheme supporting, and being cross-subsided by, the other activities of the relevant banks.[197] Overall, this renders price competition between schemes unfeasible for small or medium-sized merchants. Any payment service provider that is commercially independent and needs to make a return to account for risk and cover its cost of capital cannot sustainably price as a cost centre.

However, due to economies of scale, offering favourable deals to acquirers and large merchants is likely to be commercially viable. In such cases the multi-homing dynamic can be expected to lead to close competition. Indeed, this is happening in practice for the largest merchants, with challenger schemes offering favourable terms to some large merchants, such as

[196] Oxera understands that most consumers are not aware of the differences between Mastercard- or Visa-only cards and cards co-badged with CB.
[197] A corollary is that other elements of CB's owners' fees (such as fees charged to consumers on banking activities) may be higher (and in economic terms, are likely to be higher) in order to offset these low rates.

Carrefour, to win share from CB. This illustrates that in some circumstances (large) merchants are able to secure lower prices by capitalising on competition between the schemes.[198]

Overall, this illustrates more widely the economic consequences of multi-homing, including leading to lower acceptance costs for merchants. While French co-badged cards are considerably more mature as a product, there are parallels between the dynamics of competition for these cards and those discussed with respect to digital wallets in section 6.4.

7.4 Competition between card schemes and other providers in France

7.4.1 Context: cards and other payment methods

Cards schemes are an important part of the payment landscape in France. However, for both physical and e-commerce transactions, there are viable alternatives. This is reflected in the shares of the different payment methods. For physical in-store transactions, cash remains an important alternative to cards, albeit mainly for smaller amounts (see section 7.2.1). When it comes to e-commerce, as seen in Figure 7.2 and set out above, there are alternatives to cards, such as payment methods based on credit transfers (12% of value) or digital wallets (21% of value).[199]

Overall, as stated by the Banque de France, cards remain the 'preferred payment method of the French'.[200] However, with recent regulatory and technological changes, new players are emerging.

7.4.2 Emergence of new platforms making use of card and interbank infrastructure

As is the case elsewhere in Europe, PayPal is available to French consumers for online payments and can be linked to card details as well as bank accounts. As such, it makes use of both card payments and bank transfers.[201] Other digital wallets and wider alternatives to cards are also emerging. Some key examples include the following.

- **Apple Pay, Samsung Pay and Google Pay**: Apple's payment service is progressively extending its reach. Five major French banks have now rolled out the service to their customers (or are due to do so soon).[202] In early 2018, two French banks launched Samsung Pay. Much like Apple Pay, as of yet, Samsung Pay makes use of the consumer's card details.[203] Finally, Google Pay launched in France in December 2018, together with a number of banks (mainly smaller new or online banks).[204] At the moment, all three are linked to their users' card details. However, this might change in the future.

- **PayLib**: after a number of individual initiatives (e.g. Crédit Agricole's Kwixo or Crédit Mutuel's Pay2You),[205] in recent years, six of the largest French

[198] PaySys (2016), op. cit.
[199] Cash also remains a non-negligible payment method for e-commerce, through cash-on-delivery payments (5%). Under cash-on-delivery, consumers pay for their purchases with cash upon delivery of the goods at their address. If the goods are not paid for, they are returned to the merchant by the provider in charge of delivery.
[200] Banque de France (2018), 'Panorama des moyens de paiement scripturaux en France', June.
[201] Reflecting the prevalence of cards in France (and as opposed to Germany, for example), we understand that PayPal transactions in France tend to make use of card details more than direct transfers.
[202] Marcadé, A. (2018), 'Apple Pay vainc les réticences des banques françaises', *Le Figaro*, 21 August.
[203] Belkaab, O. (2018), 'Samsung Pay est maintenant disponible en France, tout ce qu'il faut savoir', FrAndroid, 26 April.
[204] Goetz, E. (2018), 'Google Pay débarque en France', *Les Echos*, 10 December.
[205] Renaud, N. (2011), 'Le marché français du « e-wallet » s'étoffe', *Les Echos*, 5 September.

banks have adopted CB-developed PayLib, a payment functionality accessed through the banks' apps, allowing online payment, contactless physical in-store payments and P2P transfers.[206] At the moment, NFC payments via PayLib are not possible, as Apple does not allow the use of its NFC technology by third-party providers. While currently linked to card details (except for P2P transfers, which already make use of the user's bank details), PayLib is working on fast-payment solutions (i.e. transfers via ACH rails) for e-commerce and physical in-store payments,[207] giving it full digital wallet functionality.

- **Lyf Pay**: Lyf Pay is a mobile, physical, QR code-based e-money payment app jointly developed by a number of French banks, Mastercard and retail merchants such as Casino, Auchan or Total. As such, Lyf Pay can partly be considered a store card, and integrates loyalty programmes and coupons of its retail members. Lyf Pay can be accessed through a dedicated app or via apps of member stores. It can be topped up using the bank card details of its users, or private store cards of member stores.[208]

7.4.3 Regulatory developments are making methods based on interbank infrastructure more attractive

While most mobile payment apps are mostly making use of cards at present, French banks are developing instant payment solutions that allow for greater competition. The use of payment methods based on the interbank infrastructure is likely to grow for several reasons. These include the advent and recent growth of online banks, which are pushing traditional banks to use banking apps, including in the area of mobile payments.[209] On the acceptance side, merchants are increasingly taking the necessary steps to host these functionalities (e.g. ensuring in-store wi-fi connectivity for QR code physical in-store payments).[210]

These factors are enhanced by regulatory developments in France that are likely to promote the use of interbank infrastructure for payment services in the future. Some of these are Europe-wide in nature.

- PSD2 aims to 'open up' the payments market by reducing the need for bank participation in payments.[211] PSD2 will enable third-party providers to initiate payments on behalf of account holders. Close to 25 companies already have a PISP licence.[212] As PSD2 is implemented, the use of interbank infrastructure is likely to increase in France.
- With the scheduled go-live of the ECB's TARGET Instant Payment Settlement (TIPS), European banks (and other payment service providers) will have access to TIPS for a price of €0.002 per transaction, i.e. €1 per 500 payments.[213] While payment service providers will have to incur transformation and development costs, the availability of a low-cost option for the use of ACH is likely to spur growth of new payment methods.

[206] Renaud, N. (2018), 'Paylib veut devenir le couteau suisse du paiement en France', *Les Echos*, 11 May.
[207] For P2P transfers, PayLib already makes use of the ACH rails.
[208] Cuny, D. (2017), 'Le français Lyf Pay peut-il sérieusement rivaliser avec Apple Pay et WeChat?', *La Tribune*, 17 May.
[209] Wajsbrot, S. (2018), 'Pourquoi le développement des « app » est devenu si stratégique pour les banques', *Les Echos*, 17 August.
[210] Perreau, C. (2018), 'Marc Espagnon (BNP Paribas): "Notre plateforme d'instant payment sera prête en novembre 2018"', *JournalDuNet*.
[211] See section 3.4.2.
[212] See section 7.2.3.
[213] Bayle de Jessé, M. (2018), 'Central banking in the era of instant payments – thinking ahead and moving forward', European Central Bank, 14 May, address at the Payment Systems Forum.

- As shown by the creation of the CNPS and the objectives set for it, regulators and public authorities will promote the use of direct transfers in France, together with other innovative payment methods.[214]

This is influencing the strategies of some of the new entrants identified above. For example, for companies, billing services making use of instant payments were launched by some of France's major banks at the end of 2018.[215]

These developments are expected to increase the availability of interbank payment services for retail transactions. In the long run, this can be expected to increase competitive pressure on card schemes as digital wallet providers grow in size and have the ability to 'steer' their users to the interbank or card infrastructure.

7.4.4 New players have viable strategies to establish strong competitive position

The market for payment services is characterised by networks effects—in particular, the need to build a strong base of consumers on the one hand, and the base of merchant acceptance on the other. Thus, for competition to be effective, firms need a way not only to enter the market, but also to reach the critical mass required on one side of the market (say, in terms of merchant acceptance) in order to be attractive to users (say, consumers) on the other.

This 'critical mass' requirement is particularly relevant in France, where having an established brand and presence can be especially important to facilitate growth. This is because one of the main brakes for the adoption of new payment methods remains concerns about security of personal data. In early 2018, less than half of the French population trusted newer payment methods with their data. One out of three also reported fearing that their financial data would be re-used without their explicit consent. While a generational gap can be observed (44% for seniors versus 31% of those aged 18–34), this proportion remains fairly high across generational groups.[216]

However, in line with our assessment of Europe as a whole, economic evidence suggests that strategies are available to overcome these barriers to entry. In the specific case of France, we consider three such examples:

- use of established brands;
- interbank cooperation;
- the roll-out of QR infrastructure.

Use of established brands

Where a new entrant has a brand that is well-known and trusted, in another sector, unfamiliarity is likely to be less of a barrier to expansion. As discussed in section 6.2, Apple, Google and Samsung are leveraging their existing customer bases to enter the market for payments.

Established players in the financial services space are able to leverage the reputation and trust of well-known brands and services to reassure users of the secure nature of the payments on new services. One such example is PayLib,

[214] See section 7.2.3.
[215] Perreau, C. (2018), 'Instant payment, le remède (presque) miracle pour sa trésorerie', *JournalDuNet*, 21 August.
[216] Co-marketing (2018), 'Les Français face aux nouveaux moyens de paiement', 29 March, based on a survey by Toluna Quicksurveys.

which can leverage its relationship with banks, which are well-known interlocutors for consumers and merchants alike. This is exemplified by PayLib's relatively wider acceptance by merchants and larger advertisement.

International cards schemes are able to apply a similar strategy in supporting new entrants. Mastercard is supporting a number of new entrants with Mastercard-only cards, such as Compte Nickel, a 'bankless' account targeted at lower-income individuals,[217] or the lunch voucher system Lunchr.[218]

Interbank cooperation

Competitive dynamics for payments in France are widely influenced by the role of interbank cooperation (notably through CB). Providers in this space are therefore in a good position to support the entry of new services. For example, bank- and CB-owned processing infrastructure, STET, presents PayLib as one of the main payment methods supported by STET, on a par with international and domestic card schemes.[219]

The importance of the interbank network is also highlighted by the relatively low acceptance of Google Pay by French banks—in particular, large traditional banks. Some of these banks have explicitly mentioned that they are promoting PayLib (and Lyf Pay for those banks that are among its founders) over direct competitor Google Pay.[220]

Roll-out of QR infrastructure

For e-commerce, the existing infrastructure (gateways and APIs) easily allow different methods to be used for payments. This has resulted in digital wallets already becoming well established (21% of e-commerce transactions as seen above), and makes pay-by-bank or credit transfer payments easily accessible. However, for physical payments, there have traditionally been more barriers to new interbank-based payment methods due to the need for adapted infrastructure.

One example of this is QR code-based payment methods such as Lyf Pay. For Lyf Pay, the question of holding and acceptance is proving somewhat complicated, in spite of the partnership with large retailers. For example, Lyf Pay's network of acceptance was pointed out as being mainly Paris- and Strasbourg-centric.[221] Being QR code-based has been identified as a brake on its expansion, as this technology requires more infrastructure adjustments than NFC, which only relies on existing contactless terminals.

However, the entry and associated investment of new large providers such as Alipay catering for travellers from China (i.e. inter-regional transactions) is also providing a means for growth for domestic payment services. Specifically, because Alipay is QR code-based, its acceptance growth is creating an acceptance base for QR code-based payment methods in general, enabling other, smaller providers to follow.[222] This illustrates how new entry by providers with large existing customer bases can induce positive feedback loops in terms of entry and expansion by smaller providers.

[217] See https://compte-nickel.fr/.
[218] See https://www.lunchr.co/.
[219] STET (2018), 'Our services'.
[220] Perreau, C. (2018), 'Google Pay arrive en France… mais sans les banques', *JournalDuNet*, 10 December.
[221] Cuny, D. (2017), 'Le français Lyf Pay peut-il sérieusement rivaliser avec Apple Pay et WeChat ?', *La Tribune*, 17 May,
[222] Raynal, J. (2018), 'Coup d'accélérateur en France pour Alipay, le géant chinois du paiement mobile', UsineDigitale, 15 March.

7.5 Conclusions

In France, the payment services market is characterised by widespread use of cards and the importance of the local card scheme, CB. The vast majority of French-issued cards are co-badged Mastercard or Visa and CB. In 2016, more than 80% of physical in-store transactions used CB's network.[223] Such a high share for the domestic scheme is unparalleled in Western Europe. Furthermore, CB's responsibility for technical and security standards also plays a role in the prevalence of the scheme in transactions.

Co-badging, which enables consumers to pay with two schemes on a single card, places considerable competitive pressure on card schemes by enabling merchants and acquirers to influence the choice of payment method, an ability that can then be used to secure favourable outcomes. This effect is comparable in nature to the effects of multi-homing, of which co-badging is a notable form. In the case of co-badging with CB in France, low consumer awareness further increases the role of acquirers and merchants.

Cards are increasingly challenged by digital wallets and new services taking advantage of technical and regulatory developments promoting access to interbank payments infrastructure. These new entrants face challenges to growth in terms of achieving the necessary critical mass of users, and overcoming consumer unfamiliarity, in particular concerns with respect to data and payments security.

However, in line with Oxera's analysis of Europe more widely, we conclude that such barriers are unlikely to inhibit the growth of competition in the French market. As described in this section, there are several ways for new entrants to reach a critical mass of consumers—in particular, the cross-purposing of established brands, the continued role of interbank cooperation, and the leveraging of shared infrastructure such as QR code readers. These elements suggest that both established providers, such as banks (via CB and PayLib), and challenger groups, such as Lyf Pay, are able to enter the market with new services and expand the acceptance and holding base for these services.

This entry of new services will add further competition in the French market for payments. Wider choice of payment methods and multi-homing are then likely to place increasing power with digital wallet providers and merchants/ acquirers, similar to the dynamics of co-badged cards.

[223] RBR data.

8 Competition for the provision of payment services in Germany

8.1 Introduction and key messages

- The German payments landscape is characterised by a strong preference for cash and (local) debit cards, with credit cards playing a smaller role than in other European countries.
- Most debit card transactions are based on the national 'Girocard' and are co-badged with Maestro by Mastercard or VPay by Visa, which results in direct competition between these schemes.
- Digital wallets and bank transfer-based payment methods are the most popular payment methods for online transactions. Digital wallets are mainly funded by using credit transfers and direct debits rather than card payments.
- New, innovative providers like Google and Apple have recently started their payment services in Germany; existing providers like PayPal are leveraging their customer base to mobile payments; and other providers such as telecoms firms have stopped their payments service—indicating that the provision of payments services in Germany is subject to a highly dynamic competitive process.

8.2 Overview of payment methods

The German payments landscape is characterised by a wide range of payment methods. Consumers and merchants have a variety of payment options to choose from. While there is a strong preference for cash and debit cards for in-store transactions, the landscape is changing rapidly with the growth of online shopping and e-commerce, and the emergence of new, highly innovative Internet-based payment options.

Beyond the traditional options of cash and cards, many consumers use payment methods that run off direct debit or credit transfer. Examples include methods provided by Sofort (Klarna), PayPal, Amazon Pay and Paydirekt; many consumers predominantly use credit transfers and direct debits to fund PayPal and Amazon Pay transactions.

At the same time, new and innovative business models are evolving, exerting competitive pressure on the status quo. This is attributed in part to PSD2 and the rise of PISPs such as Sofort.

Key observations on the German market include the following.

- Cash is still the main payment method used in Germany, accounting for 75% of transactions.[224]
- Most debit card transactions are made using the local Girocard debit card, but most Girocards are co-badged with Maestro or VPay, which means that consumers have choice at POS between two types of debit applications.
- The use of credit cards in Germany is much less common than debit cards, and merchants' acceptance rates are also generally lower.

[224] Bundesbank (2018), 'Payment behaviour in Germany in 2017', table 5.

- While the market has traditionally been slow to innovate, this is now starting to pick up. For example, online payments, which currently account for 10% of all retail transaction value, are playing an increasing role in Germany.[225] A significant share of online transactions are carried out through credit transfer-based payment methods and digital wallets.

8.3 Market structure, types of player and payment methods

The German payments landscape is characterised by its relatively high use of cash, followed by debit card payments. According to a recent study by the Bundesbank (the 'Bundesbank study'), almost 50% of the transaction value and about 75% of the number of in-store transactions were based on cash.[226] For in-store transactions, the study finds that:

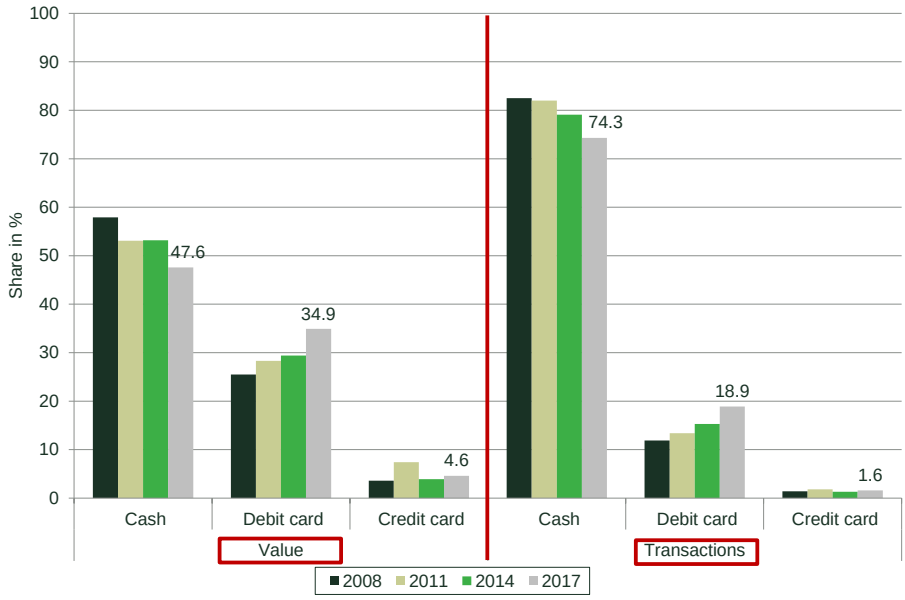
- cash is the most popular payment method in Germany;
- debit card payments are the next most prevalent choice, with shares of approximately 35% (transaction value) and 19% (transactions);
- cash usage has been declining over the last 10 years and debit cards have been gaining importance;
- credit card usage shares are significantly lower, at less than 5% (transaction value) and 2% (transactions). Credit card usage has had a moderate upwards trend over the last decade.

These results are shown in Figure 8.1 below.

[225] IBI (2017), 'E-Commerce-Anteil am Einzelhandelsumsatz könnte sich bis 2023 auf rund 20 Prozent verdoppeln', 24 October. This share is significantly lower than the Internet-based share of 3.7% found in the Bundesbank study (table 4). There are two reasons for this: i) other payment methods may relate to online shopping as well (credit cards, direct debit, etc.), which affects the numerator; ii) the Bundesbank study includes non-retail payments such as those made to public administration or to private persons, which affects the denominator.

[226] Bundesbank (2018), 'Payment behaviour in Germany in 2017', tables 4 and 5. This excludes recurrent payments, such as rent, utilities, phone contracts and insurance.

Figure 8.1 Payment usage in Germany— in-store and private transactions (value and number of transactions), 2008, 2011, 2014, and 2017



Note: Recurrent payments, such as rent, utilities, phone contracts and insurance, are excluded from this study. Other payment cards (e.g. prepaid, customer cards), mobile payments, and other payment instruments are also excluded due to their low shares. Credit transfer (wire transfer, bank transfer), direct debit, and Internet-based payment methods (PayPal, Amazon, Sofort-Überweisung) are not included.

Source: Bundesbank (2018), 'Payment behaviour in Germany in 2017', tables 4 and 5.[227]

8.3.1 Card payment methods

Debit cards are gaining popularity in the German in-store segment. The vast majority of debit cards are 'Girocard' (formerly 'Electronic Cash', EC) debit cards used for in-store payments. These cards are typically 'co-badged' with Mastercard (Maestro) or Visa (V-Pay). Mastercard or Visa also provide 'stand-alone' debit cards, but these have relatively low issuance.

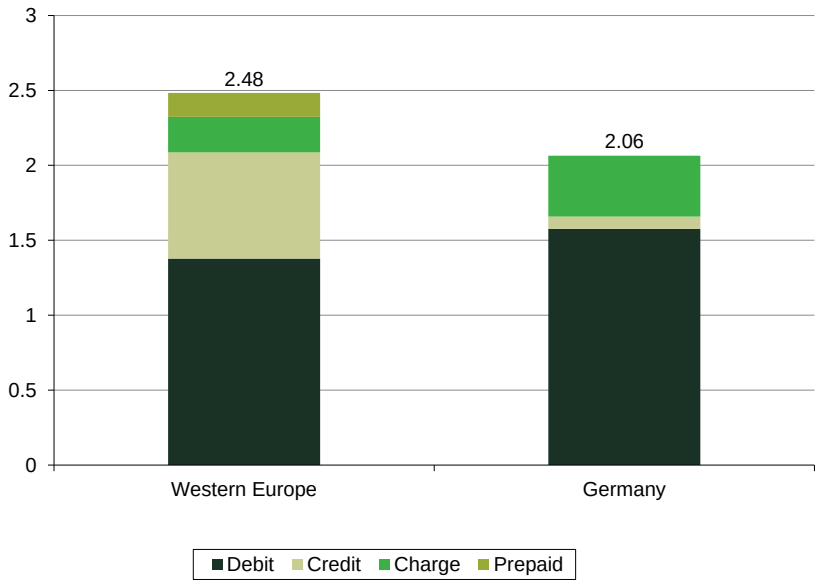
Within Germany, the bulk of in-store debit card transactions are domestic (i.e. by German cardholders at German merchants), and Girocard is the payment method preferred by the merchants (not overridden by the consumers). Almost all adults in Germany hold at least one debit card (98% of respondents in the Bundesbank study, mostly Girocard), and 36% hold at least one credit card.[228]

[227] The ratio debit to credit card payments is less favourable to debit card transactions according to a different source: Bundesbank (2017), 'Statistics on payments and securities trading, clearing and settlement in Germany 2012 to 2016', September, table 6a. In that study, 2,996.4m transactions are made with debit cards ('payments with cards with a debit function'), and 965.9m transactions ('payments with cards with a delayed debit function') plus 111.7m transactions ('payments with cards with a credit function') with credit cards, reducing the ratio from c. 12:1 to c. 3:1. The difference from the Bundesbank study might simply depend on how survey respondents categorise payments with cards with a delayed debit function, for example.

[228] Bundesbank (2018), 'Payment behaviour in Germany in 2017', figure 2. A comparable statistic, the total number of cards in Germany, suggests similar results. See, for example, Statista based on PaySys Consultancy, https://de.statista.com/statistik/daten/studie/38044/umfrage/anzahl-von-zahlungskarten-in-deutschland-nach-arten/. The number of credit card holders is significantly higher, at 51%, according to Initiative Deutsche Zahlungssysteme (2017), 'Allensbach-Umfrage zum Bezahlen in Deutschland 2017', Management Summary, p. 4.

As shown in Figure 8.2, cards, and credit cards in particular, are less prevalent in Germany compared to the rest of Western Europe.

Figure 8.2 Average cards per person in Western Europe and Germany, 2016



Source: *Western Europe*: Oxera analysis of data from RBR (2017), 'Global payments cards data and forecasts to 2022'. *Germany*: Oxera analysis of data from European Central Bank (2018), 'Payment statistics report', p. 322, and adult population from the German statistical office (Statistiches Bundesamt).

Although card penetration is slightly lower in Germany than in Western Europe, the co-badging nature of most Girocards means that with just this one card, cardholders will have two payment options in store: Girocard or (typically) Maestro or VPay.

Alternatively, when a consumer presents their card to the merchant, the merchant may opt for a payment via the electronic direct debit system (ELV), requiring the cardholder's signature. ELV is typically offered at a lower fee than a PIN debit card transaction, but does not come with a payment guarantee. This means that merchants will typically use certain information, e.g. time of transaction, value of purchased good, or knowledge on the cardholder, before opting for ELV. About 18% of debit card payments are processed via ELV.[229]

8.3.2 Other payment methods

Cash is an important alternative payment choice for merchants and cardholders. At present, cash represents the preferred means of payment for consumers in the German market. This preference is attributed to factors including cash 'providing a clear overview of spending', its ease of use, and privacy.[230] Cash is perceived as a substitute for card payments for many transactions: for medium- to high-value transaction levels, cash is the second most frequent method, even for payments above €500.[231] The same holds for

[229] Bundesbank (2018), 'Payment behaviour in Germany in 2017', table 4.
[230] Ibid., figure 7. Respondents' answers are grouped by all respondents and credit card holders.
[231] Ibid., figure 5.

many different transaction purposes.[232] In addition, consumers carry a significant amount of cash, on average more than €100.[233]

A number of new payment options have become available, driven by technological advances. New mobile payment methods such as Payback, Google Pay, Apple Pay, and Alipay are growing rapidly, albeit from a small base.[234]

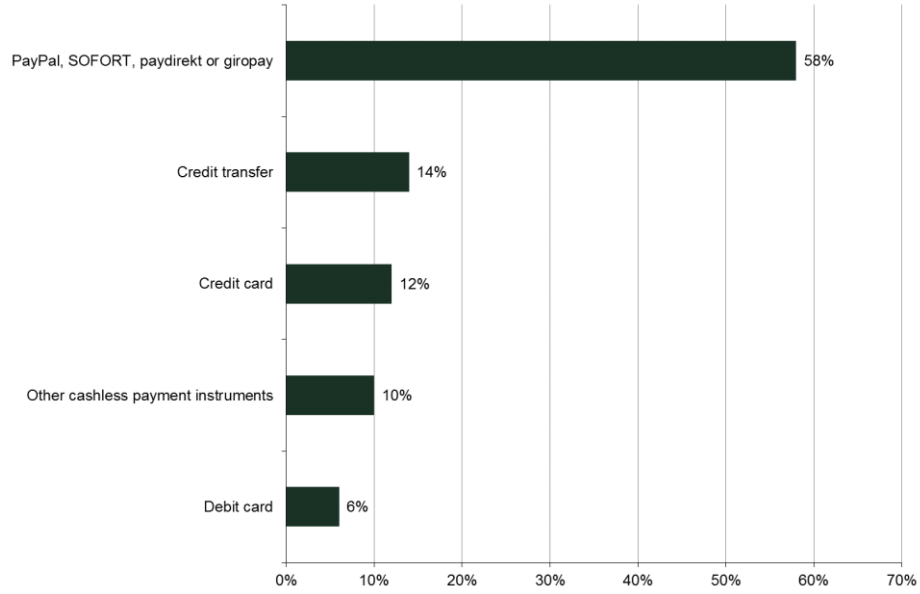
There are several different types of Internet-based payment providers in Germany supporting online transactions, set out below:

- PayPal is a popular payment method in Germany. We understand that most PayPal transactions in Germany are funded by direct debits and credit transfers rather than cards.[235]
- Amazon or Amazon Pay[236] operates like other digital wallets such as PayPal, and we understand that most transactions rely on direct debit/credit transfers rather than card transactions for the fund transfer.
- 'Sofort' (Klarna)[237] is an ACH-based payment method that uses bank credit transfers. Its advantage over a standard credit transfer is that the merchant immediately receives confirmation of the authorisation of the payment (but not the payment itself), which can speed up the delivery process for the goods (and reduce merchants' risks).
- paydirekt[238] is a new payment method developed by leading German banks and is also based on credit transfers. It also sends confirmation of authorisation of the payment to the retailer immediately.
- Giropay integrates over 1,500 German banks and allows customers to complete online payments using their online banking.[239]

Figure 8.3 below sets out the methods that German consumers currently use to complete online payments.

[232] Bundesbank (2018), 'Payment behaviour in Germany in 2017', figure 6.
[233] Ibid., p. 13.
[234] Kreditkarte.net, 'Mobile Payment – Deutscher Handel, quo vadis?'. Welt (2018), 'Endlich, auch iPhone-Nutzer können bald mobil bezahlen', 1 August. Concardis (2017), 'One year of Alipay in Germany: expectations significantly exceeded', 7 November.
[235] For example, it is estimated that around 15–20% of PayPal revenue with German merchants is generated with credit cards. See *IT Finanzmagazin* (2018), 'Die girocard ist vermutlich zu spät – Interview mit Hugo Godschalk, PaySys Consultancy', 19 September.
[236] Amazon Pay, https://pay.amazon.com/de.
[237] Sofort, https://www.sofort.de/.
[238] Paydirekt, https://www.paydirekt.de/
[239] Mollie (2019), 'What is Giropay and how does it work?', https://help.mollie.com/hc/en-us/articles/360006078314-What-is-Giropay-and-how-does-it-work-, accessed 6 August 2019.

Figure 8.3 Online payments usage in Germany, survey data, 2017



Source: Bundesbank (2018), 'Payment behaviour in Germany in 2017', figure 6.

8.4 Competitive dynamics in Germany

8.4.1 Competition between different payment methods

Merchants have a choice about which payment methods to accept, both in relation to in-store and online transactions, given that customers have access to more than one payment method:

- some retailers, in particular those entering Germany from abroad (such as Primark), only accept international card schemes;[240]
- a number of major German retailers (Aldi, Lidl, Netto, etc.) began accepting credit cards following the European regulation of MIF.[241]

Overall, Mastercard and Visa have less penetration with German merchants than Girocard. From the consumer's perspective, Article 8 of the IFR introduces more choice to cardholders, as merchants are now required to give consumers paying with their co-badged Girocard the choice over which payment system (e.g. Giro or Maestro) at the POS. This can be considered a form of multi-homing, as described in section 6. We understand that few consumers appear to be aware of this and merchants do not make this choice very prominent (if their POS has yet to be upgraded), with the effect that the transactions continue to run on merchants' default system (typically Giro). However, once issuers start incentivising consumers, POS selection imposes a constraint on all schemes to offer value and benefits to merchants and cardholders to ensure they remain an attractive choice.

While Girocard debit cards—with or without co-badged international card payment methods such as Mastercard ('Maestro') or Visa ('V-Pay')—do not currently enable online payments, major German banks have decided to upgrade the Girocard system to allow such online transactions in the future. The plan appears to be of wide scope, with the apparent commitment of major

[240] *IT Finanzmagazin* (2017), 'Girocard oder Debit Master-card – Wer die Wahl hat …', 1 June,
[241] Welt (2015), 'Hier können Sie mit Kreditkarte zahlen', 10 July.

banks—cooperative banks ('Volks- und Raiffeisenbanken') and savings banks ('Sparkassen')—although the timing of implementation is unclear.[242]

8.4.2 Entry, expansion, and barriers

The German payments landscape is undergoing substantial change, with new players offering payment processes and existing players expanding their services. This dynamic process is particularly pronounced in the service for mobile payments, as the subsequent examples demonstrate.

Tech companies have begun offering mobile payments in Germany. For example, Google initiated its payment service in Germany in June 2018,[243] and Apple launched its payment method in December 2018, in cooperation with some leading German banks (e.g. Deutsche Bank, comdirekt), fintechs (e.g. N26, boon), and credit and debit card companies (Mastercard, Visa, American Express). Apple, which has already entered in many other European countries, facilitates transactions at large retailers (e.g. Lidl, Aldi, Netto), franchise companies in the food industry (e.g. McDonalds, Vapiano), and other companies (e.g. Adidas, Allianz).[244]

German bank, N26, has attracted over 2m customers since its initiation in 2013 (product launch in 2015).[245] Formerly 'number26', N26 started as a fintech with a focus on mobile payment services, but has since acquired its own banking licence, dispensing with the need to cooperate with Wirecard (a German bank and payment service provider) to provide full banking services.[246]

Some German retailers have now integrated their loyalty points system to an e-wallet ('Payback Pay').[247]

Other providers such as telecom firms Vodafone, O2 and Deutsche Telekom have stopped providing their payment services. For Vodafone, the accomplishment of a critical mass—smartphones with Google's operating system Android (as Apple's iPhone denies access) and with NFC technology—appeared to be too difficult, even though a Vodafone contract as such was not required.[248] However, O2 has re-entered the market in cooperation with Fidor Bank, facilitating mobile banking through an O2-branded mobile bank, a similar business model to that of N26.[249] This demonstrates that there is competition for the market, with both entry and exit observed, and it remains to be seen how this dynamic process unfolds for Google and other providers.

Existing providers adopt a different strategy: The Sparkassen (c. 400 banks), the Volks- und Raiffeisenbanken (c. 900 banks), and Deutsche Bank, among others, have introduced their own (distinct) payment apps. Unlike Google, which processes the payment through the consumer's credit card, the Sparkassen and Volks- und Raiffeisenbanken also admit the use of Girocards

[242] IT Finanzmagazin (2018), 'DK-Info 2018: girocard kontaktlos ist da, mobile kommt', 18 June.
[243] Golem (2018), 'Google Pay startet in Deutschland mit vier Finanzdiensten', 26 June.
[244] Apple Pay, https://www.apple.com/de/apple-pay/.
[245] Ha, A. (2018), N26 tandem disrupt Berlin, December.
[246] IT Finanzmagazin (2016), 'number26 wird N26: Vom hippen FinTech zur regulierten – aber innovativen – Bank', 22 July. N26, https://n26.com/en-gb/about-n26.
[247] Giga (2018), 'Mobile Payment: Bargeldlos mit Bezahl-Apps zahlen – Anbieter in Deutschland', 26 June.
[248] Golem (2018), 'Warum Apple Pay sich hier noch nicht auszahlt', 28 June. Handelsblatt (2018), 'Vodafone stellt seine digitale Geldbörse ein', 17 April.
[249] See https://o2banking.fidor.de/.

in their mobile wallet; like Google, the apps are not available in Apple's iPhones.[250]

A potential advantage of these existing providers is their large customer base. According to the 2017 Bundesbank survey, around 50% of current account holders use as their primary account Sparkassen (and Landesbanken), and around 20% use the Volks- und Raiffeisenbanken.[251]

8.5 Conclusion

There is a diverse payments landscape in Germany, characterised by merchants and cardholders having a wide range of payment options to use and accept. The strong position of cash as well as the national debit card scheme, the Girocard, the relatively low usage of credit cards, and heavy use of credit transfer-based payment methods and direct debits for online transactions are particular characteristics of Germany. The Girocard, typically co-badged with Visa or Mastercard, is a multi-homing device as cardholders can opt between the national and international scheme when making a transaction in-store.

Players like Mastercard and Visa have introduced stand-alone debit cards, and major banks have decided to upgrade Girocard to allow for online transactions in the future. Internet-based payments providers such as Amazon, Sofort and PayPal continue to disrupt the competitive landscape; and new, innovative providers such as Google have launched their own payment services. This, coupled with the changing regulatory landscape (PSD2) exerts competitive pressure on the payment ecosystem in relation to its provision of services to both merchants and cardholders.

With the declining significance of cash opening up space for firms to enter the market or expand their business, pressure for firms to innovate and compete to provide the best payments services is likely to remain high or even increase.

[250] Golem (2018), 'Sparkassen bringen eigenes mobiles Bezahlsystem', 27 June. Chip (2018), 'Volks-und Raiffeisenbanken ziehen nach: Banken starten neues Bezahlsystem per Smartphone', 7 August. Deutsche Bank (2017), 'Deutsche Bank brings mobile payments to Germany: The smartphone as a wallet', 5 April.
[251] Bundesbank (2018), 'Payment behaviour in Germany in 2017', figure 3.

9 Competition for the provision of payment services in Italy

9.1 Introduction and key messages

- Cash continues to be the main payment method used in Italy for in-store transactions, with 86% of all transactions conducted in cash in 2017 (the fifth-highest proportion in the eurozone).[252] However, in 2018 the percentage of paper payments decreased to 75.8%,[253] showing an alignment with the trend in the eurozone.
- Card transactions have been steadily increasing in recent years, especially for low-value payments, due to the successful introduction of contactless cards.[254]
- Within the realm of card payments, debit cards are by far the most common payment method.[255] Italy is also characterised by having a high number of prepaid cards and is the leading European prepaid card market.[256]
- Combined with the provisions of the IFR, the prevalence of co-badging among domestic debit cards (PagoBancomat) allows for competition between domestic and international card schemes to incentivise usage by consumers.
- The landscape is changing gradually with the growth of ecommerce and the emergence of new Internet-based payment methods. E-wallets (such as PayPal and Apple Pay), domestic payment methods (such as Satispay and Bancomat Pay), and emerging digital banks (such as N26 and Hype) are gaining in popularity, especially among young people. Compared with the established providers in the market, these payment methods are still at an early stage of development. Considering that Italian consumers appear to trust technology companies more than traditional banks, the importance of these new payment methods is likely to increase in the future.

9.2 Overview of payment methods

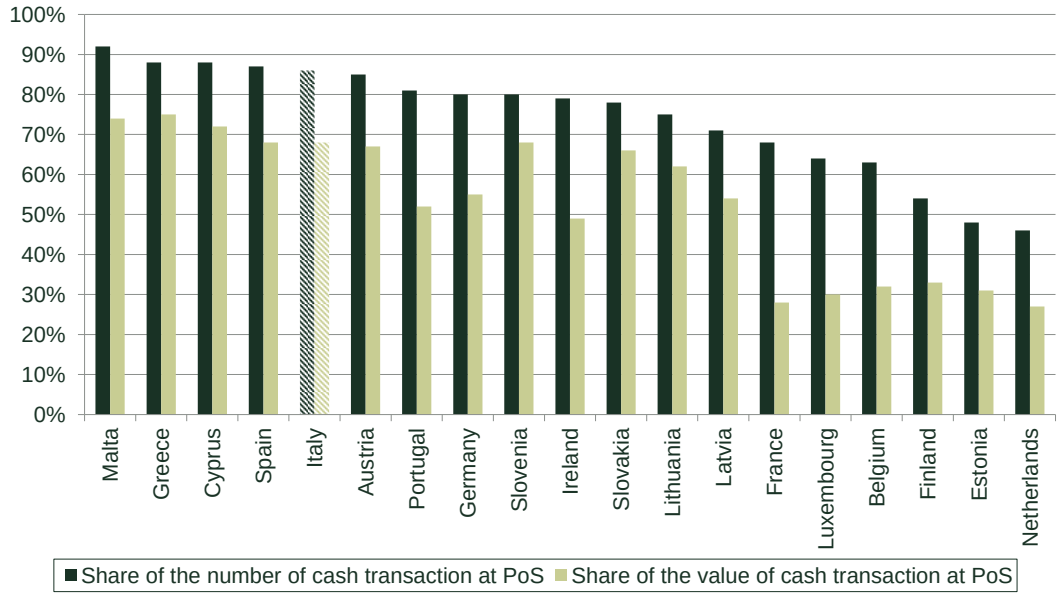
9.2.1 Cash usage for in-store transactions

Cash continues to be the main in-store payment method used in Italy. Its use is high relative to other eurozone countries, with 86% of all in-store transactions in Italy being carried out in cash in 2017, and cash-based transactions amounting to 68% of the total value of all retail transactions (see Figure 9.1 below).[257] However, according to Euromonitor, the percentage of paper

[252] Esselink, H. and Hernández, L. (2017), 'The use of cash by households in the euro area', European Central Bank, Occasional Paper Series, No 201, November, p. 20.
[253] Euromonitor International (2018), 'Financial cards and payments in Italy', Passport, November, p. 5.
[254] European Central Bank (2018), 'Payments statistics Europe', report, p. 89, table 9.1, taken from Statista, 'Payment methods in Italy', StudyID 50253.
[255] Worldpay (2018), 'Global Payments Report', November, p. 59.
[256] Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2018/2019 – Italy', Statistical Report, p. 4.
[257] Esselink, H. and Hernández, L. (2017), 'The use of cash by households in the euro area', European Central Bank, Occasional Paper Series, No 201, November, p. 20.

payments in 2018 decreased to 75.8%.[258] This suggests that Italy is moving towards the average usage of cash of the other eurozone countries.

Figure 9.1 Share of cash transactions per country (eurozone) in-store, 2016



Source: Esselin, H. and Hernández, L. (2017), 'The use of cash by households in the euro area', European Central Bank, Occasional Paper Series, No 201, November, p. 20.

Cash is often used for lower-value payments. As shown in Figure 9.1, the share of the number of cash transactions is higher than the share of the value of cash transactions. This is confirmed by the lower percentage of transactions above €100 carried out in cash in Italy (51% for transactions above €100, as opposed to 86% for all transactions).[259]

The main reason for consumers' preference for cash seems to be the increased perception of control over their expenses when using cash. This is confirmed by a survey in 2018 by Findomestic, which showed that 54% of Italian consumers prefer to pay by cash because they are sure about the amount spent.[260]

This might, in turn, be linked to how the age and education demographics in Italy compare with those in other European countries. An ECB study confirms the importance of age and education in the use of cash, and shows that cash use increases along both age groups and education.[261] Italy has a combination of a high share of population aged 65 or above[262] (in 2018, the highest in Europe) and a low level of education compared with other European countries.[263]

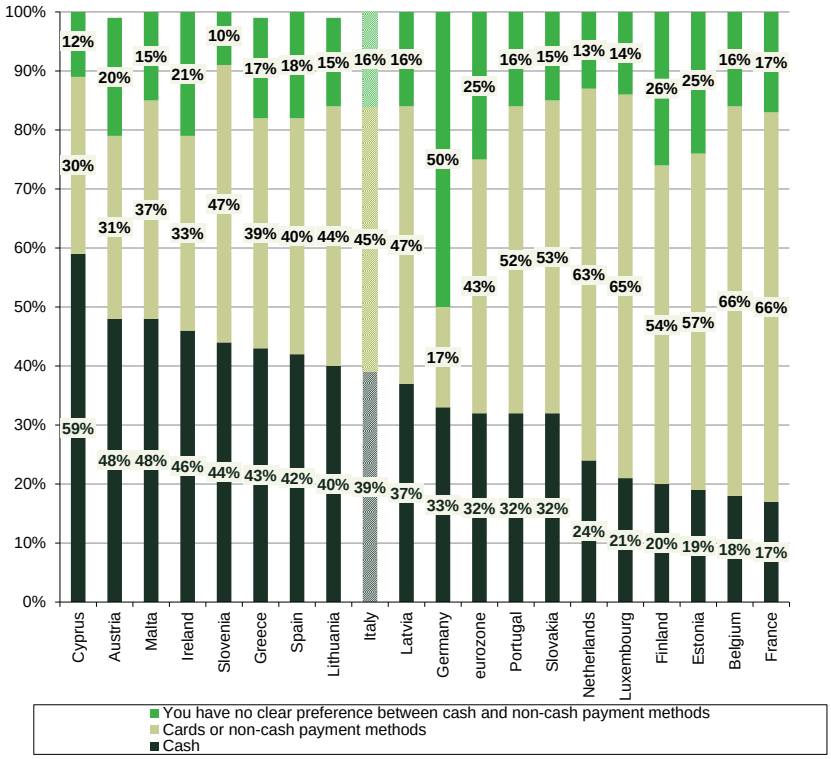
[258] Euromonitor International (2018), 'Financial cards and payments in Italy', Passport, November, p. 5.
[259] Lalouette, L. and Esselink, H. (2018), 'Trends and developments in the use of euro cash over the past ten years', European Central Bank, *Economic Bulletin*, **6**, p. 93, Chart B.
[260] Findomestic (2018), 'L'Osservatorio: il clima di fiducia e le intenzioni di acquisto degli Italiani', Indagine, May, p. 18.
[261] European Central Bank (2014), 'Consumer cash usage. A cross-country comparison with payment diary survey data', Working paper series, No. 1685, June, pp. 18–19.
[262] Eurostat (2018), 'Population age structure by major age groups, 2008 and 2018 (% of the total population)'.
[263] In 2017, Italy had a lower share of population with tertiary education not only than other European countries, but also than other less-developed OECD countries, such as Turkey, Chile, Colombia and Costa Rica. See OECD (2018), 'Population with tertiary education'; OECD, Programme for International Student Assessment, Country Performance compared to the OECD average and medium term trends.

9.2.2 Card use at POS

Despite the prevalence of cash in Italy, other payment methods have been growing. In particular, card transactions have been steadily increasing in recent years. For instance, the number of card transactions increased by 16% over the period 2017–18.[264]

The growth in the number of card transactions at POS—with a compound annual growth rate (CAGR) of 8% between 2012 and 2016—has been driven mostly by consumers' increasing use of cards for low-value transactions that would previously have been conducted in cash. This tendency has been facilitated by consumer preferences. As shown in Figure 9.2, consumer preference for cards (at 45%) is actually higher than preference for cash (25% according to the Findomestic survey[265] and 39% according to the ECB survey[266]). It has also been facilitated by the diffusion of contactless cards and contactless POS terminals (see Figure 9.3 below).

Figure 9.2 Response to the survey question: 'Assuming you were offered various payment methods in a shop, what would be your preferred payment method?', 2015–2016



Note: Not all the percentages shown in the graph sum to 100. This issue is present in the original data source and is possibly due to differences in rounding.

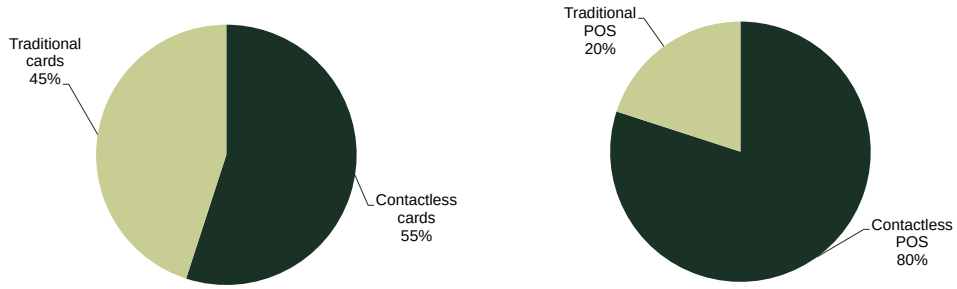
Source: Esselink, H. and Hernández, L. (2017), 'The use of cash by households in the euro area', European Central Bank, Occasional Paper Series, No 201, November, p. 53.

The diffusion of contactless cards and contactless POS terminals, in particular, has led to a downward trend in the average value of card transactions, from

[264] European Central Bank (2019), 'Payment Statistics', July, p. 7, table 7a.
[265] Findomestic (2018), 'L'Osservatorio: il clima di fiducia e le intenzioni di acquisto degli Italiani', Indagine, May, p. 18.
[266] Esselink, H. and Hernández, L. (2017), 'The use of cash by households in the euro area', European Central Bank, Occasional Paper Series, No 201, November, p. 53.

just over €80 in 2012 to just over €70 in 2016.[267] Indeed, the average value of contactless card transactions is considerably lower than traditional transactions (€51 in 2016).[268]

Figure 9.3 Number of cards and POS terminals in Italy: traditional and contactless, 2018

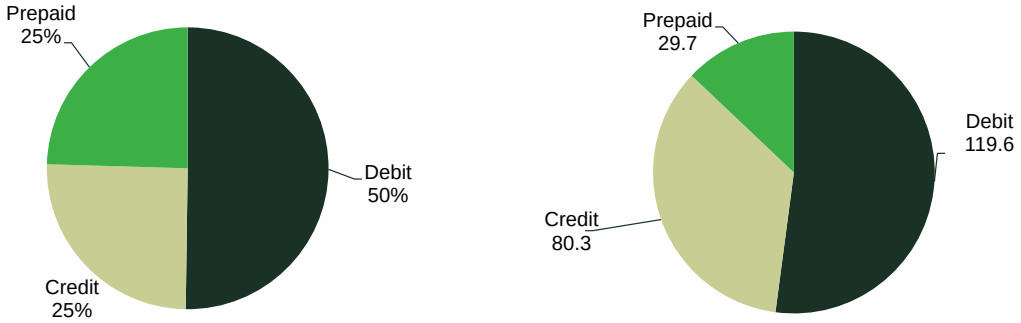


Source: Politecnico Milano – School of Management (2019), Osservatorio Mobile Payment & Commerce, "I pagamenti digitali con carta: a che punto siamo?", 14 March, p. 13.

9.2.3 Credit, debit and prepaid cards

Within card payments, debit cards are the most common payment method in Italy in terms of both the number of cards issued and the value of card payments at POS (Figure 9.4). In 2017, 44% of Italian cards were PagoBancomat cards (a domestic debit card scheme that also allows for some prepaid cards),[269] all of which are co-badged with an international debit card scheme.[270]

Figure 9.4 Share of number of cards in Italy and value of card payments: breakdown by method, (€bn), 2018



Note: The chart on the left shows the share of the number of cards by method, while the chart on the right shows the share of value of card payments by method.

Source: ECB (2019), 'Payment statistics – Italy', July, pp. 6–8, tables 6a and 8a.

Italy is also characterised by a high number of prepaid cards—the highest among European countries[271]—which, as confirmed by their high transaction share relative to value (as shown in Figure 9.4), are typically used for smaller

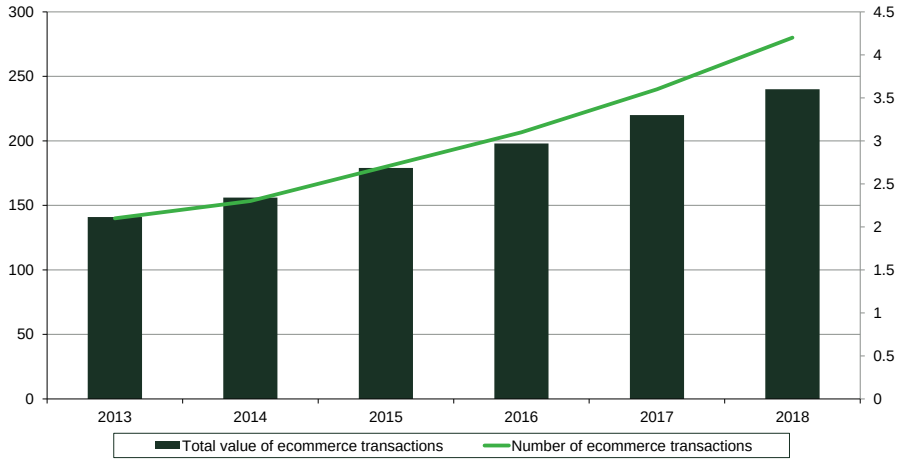
[267] Payment Industry Intelligence (2018), 'Payment Card Yearbooks Statistics Report 2017/2018 – Italy', p. 29, Table 8.
[268] Politecnico Milano – School of Management (2019), Osservatorio Mobile Payment & Commerce, "I pagamenti digitali con carta: a che punto siamo?", 14 March, p. 14.
[269] Worldpay (2018), 'Global Payments Report', November, p. 59.
[270] Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2017/2018 – Italy', Statistical Report, p. 17.
[271] Ibid., p. 4.

transactions than other card types.[272] Among prepaid cards, 'carte conto' are particularly widespread. These prepaid cards are associated with an IBAN (International Bank Account Number) and allow users to make or receive international payments. Examples are Intesa San Paolo's Superflash and Poste Italiane's Postepay Evolution.[273] This feature makes prepaid cards a useful substitute for debit cards, since they can replicate most of the functions of a bank account, including budget-setting. Indeed, prepaid cards have been used to target segments of users who do not own a current or savings account at a traditional banking institution (especially very young users and immigrants).[274] This means that, in Italy, even people without a bank account can access most of the benefits of card payment services. However, a carta conto does not allow the user to make financial investments or open a deposit account.[275]

9.2.4 Ecommerce payment methods

Ecommerce is less developed in Italy than in other European countries. For instance, while per-capita ecommerce revenues in Italy were equal to €316 in 2017, in Spain they were equal to €422, in France to €442, in Germany to €537 and in the UK to €720.[276] Nevertheless, ecommerce turnover in Italy increased steadily between 2013 and 2018 (see Figure 9.5) due to increasing access to the Internet (79% of Italian households had access to the Internet in 2016, compared with 63% in 2012) and an increasing penetration of smartphones (62% in 2016, up from 41% in 2013).[277]

Figure 9.5 Ecommerce turnover and ecommerce number of transactions in Italy (€bn), 2018



Source: Politecnico Milano – School of Management (2019), Osservatorio Mobile Payment & Commerce, 'I pagamenti digitali con carta: a che punto siamo?', 14 March, pp. 3–5.

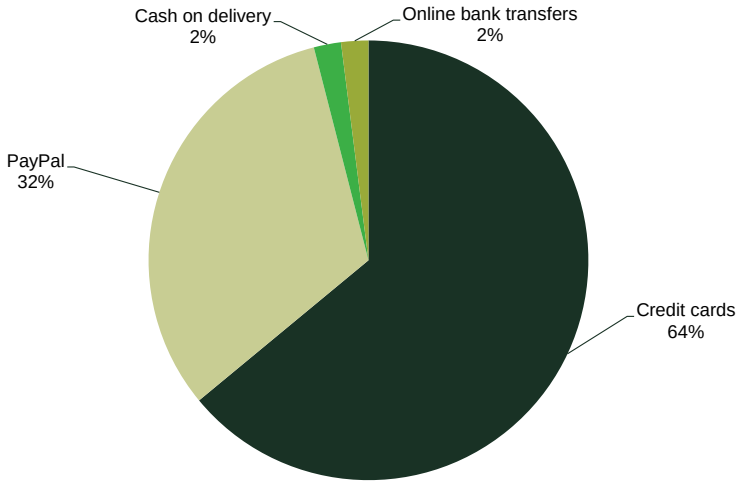
[272] Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2018/2019 - Italy', Statistical Report, p. 4. Autorita' Garante della Concorrenza sul Mercato (2009), 'Le carte prepagate in italia. Caratteristiche, diffusione e potenziale impatto concorrenziale sull'offerta di moneta elettronica', IC37 – Indagine conoscitiva sulle carte prepagate, March,p. 35.
[273] See https://www.intesasanpaolo.com/it/persone-e-famiglie/prodotti/carte/carte-prepagate/carta-superflash.html; https://postepay.poste.it/prodotti/postepay-evolution.html.
[274] Autorita' Garante della Concorrenza sul Mercato (2009), 'Le carte prepagate in italia. Caratteristiche, diffusione e potenziale impatto concorrenziale sull'offerta di moneta elettronica', IC37 – Indagine conoscitiva sulle carte prepagate, March,p. 35.
[275] Facile.it, 'Carta conto: cos'è e come funziona'.
[276] PostNord (2018), 'E-commerce in Europe 2018, Consumer Survey'.
[277] Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2018/2019 – Italy', Statistical Report, p. 31.

The growth of ecommerce is increasing the relevance of online card payments. Indeed, between 2011 and 2017 the number of online card transactions grew by 33%, compared with 12% for physical in-store payments during the same period.[278]

The domestic PagoBancomat debit card cannot be used for online transactions.[279] Consumers have therefore adopted alternative payment methods, both traditional and novel. Among the traditional methods, credit cards are the preferred option for online transactions (see Figure 9.6). This might explain the recent increase in credit card usage (a CAGR of 18.97% between 2015 and 2016, much higher than the five-year CAGR of 5.8% between 2012 and 2016).[280]

PayPal is the second most common payment method used by Italian e-shoppers (see Figure 9.6). Compared with other European countries, Italy has one of the highest shares of online transactions carried out with e-wallets (see Figure 9.7).

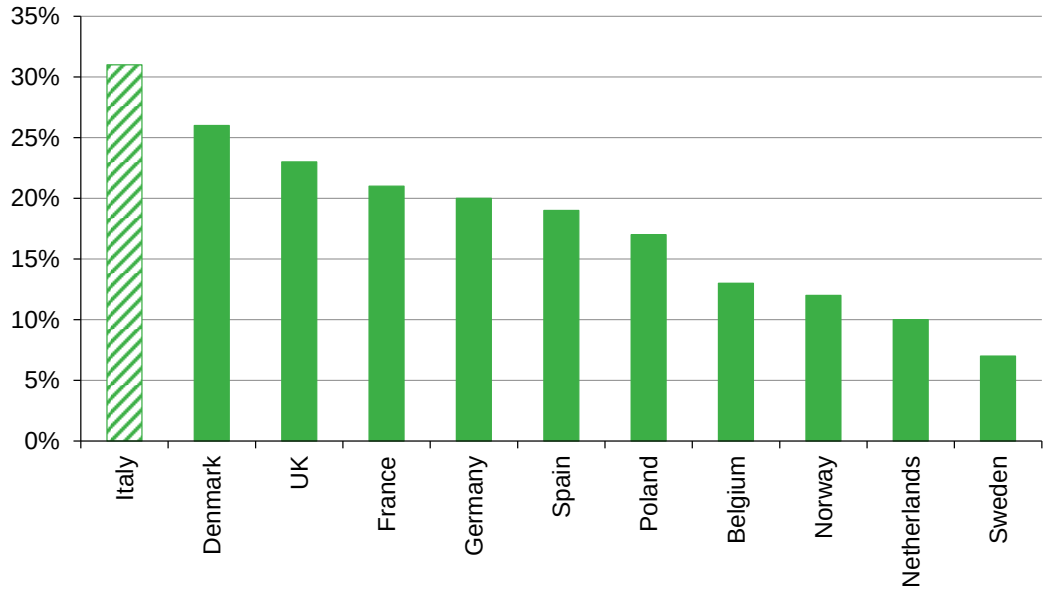
Figure 9.6 Share of transactions by ecommerce payment methods in Italy, 2018



Source: Politecnico Milano – School of Management – Netcomm (2018), 'Osservatorio Mobile Payment & Commerce, "eCommerce B2c: cresce il mercato, ma aumenta il valore?', 14 March, p. 18.

[278] Associazione Bancaria Italiana (2017), 'I sistemi di pagamento nella realta' italiana', p. 25.
[279] PagoBancomat cards, even if co-badged with Visa or Mastercard, cannot be used for online transactions. It is possible to make online transactions with PagoBancomat cards using the *PagoBANCOMAT® WEB* service. However, this service is not widespread due to the high costs attached to investments in adequate interfaces and the need to stipulate agreements with merchants. Moreover, while PagoBancomat is a domestic scheme; by nature, ecommerce is international.
[280] Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2018/2019 – Italy', Statistical Report, p. 37.

Figure 9.7 E-wallet share of online transactions by country, 2017



Note: The figure covers e-wallets used for online transactions, and includes providers such as PayPal, Visa Checkout, MobilePay, and Masterpass.

Source: Worldpay (2018), 'Global Payments Report', November, p. 59.

As shown in Figure 9.6, PayPal has a strong position among e-wallets in Italy. According to a survey conducted in 2017, PayPal is the preferred ecommerce payment method of Italian consumers.[281] PayPal can be funded via card-based (prepaid cards, carte conto, Mastercard and Visa stand-alone debit cards, and credit cards) or bank transfer payment methods.[282]

Poste Italiane is another key (domestic) player in ecommerce payments, as it offers both prepaid cards and e-wallets for online transactions.[283]

Box 9.1 Regional heterogeneity in the diffusion of traditional and new payment methods among Italian consumers

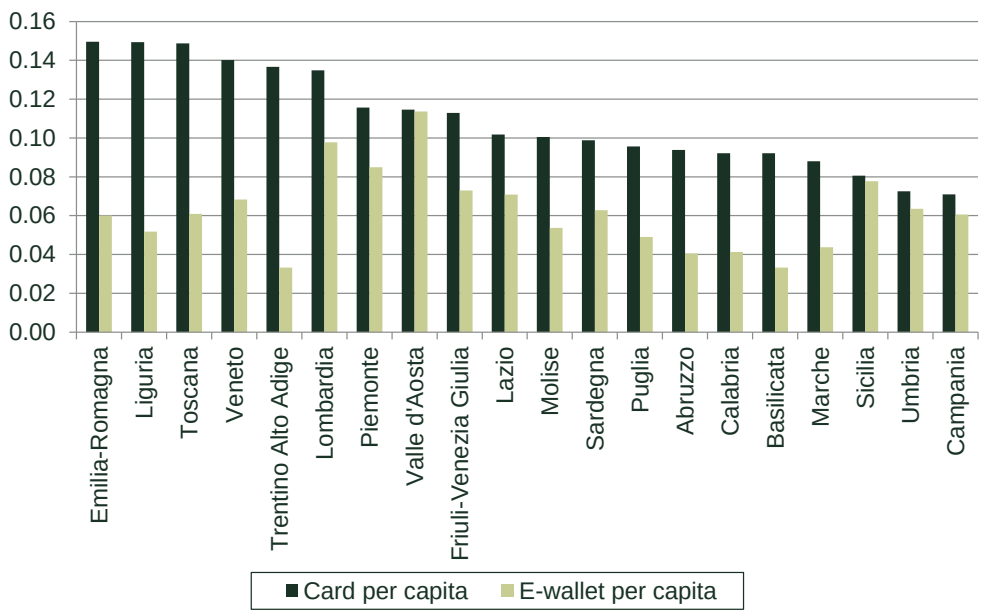
In markets that exhibit network externalities, it is important to be aware of the existence of sub-networks (such as geographical enclaves), as these affect the potential speed of take-up of new technologies.[284] While, to some extent, all countries present heterogeneity with respect to payment methods, Italy is characterised by a particularly high level of geographical heterogeneity,[285] also with regard to other economic indicators such as GDP per capita.[286]

In particular, the use of non-cash payment methods is much more common in the northern and central areas of Italy. As indicated in Figure 9.8, the number of cards per capita is higher in the north than in the south. That said, new payment methods such as e-wallets show relatively high levels of adoption rates in a few southern regions (e.g. Sicily). This implies that

[281] Statista, 'e-Commerce in Italy', dossier, StudyID366559, p. 50. The survey compared various online payment methods, including PayPal, prepaid cards and credit cards.
[282] PayPal, https://www.paypal.com/it/smarthelp/article/quali-carte-di-credito-o-prepagate-posso-usare-su-paypal-faq1119, accessed August 2 2019.
[283] Poste Italiane (2018), 'Attivita' e prospettive del Gruppo Poste Italiane', 18 September, p. 36.
[284] Arduini, F. (2019), 'Death of an old star…evolution of a new one?', *Agenda*, February.
[285] The European House Ambrosetti (2019), 'Cashless Revolution: a che punto siamo e cosa resta da fare per l'Italia'.
[286] Eurostat (2019), 'Regional gross domestic product by NUTS 2 regions - million EUR'.

traditional and new payment methods may face different constraints in different regions of Italy.

Figure 9.8 Number of cards and e-wallets per capita by region, 2017



Source: Associazione Bancaria Italiana (2017), 'I sistemi di pagamento nella realta' italiana', p. 65.

Source: Oxera elaboration.

9.3 Competitive dynamics in Italy

9.3.1 Competition between card payment methods in Italy

Competition in Italy exists both between and within card payment products. The payments market is becoming more pan-European (as the recent wave of consolidation in the market at the European level attests).[287] As described in the previous section, Italy starts from a point of being unusually dependent on cash, prepaid and domestic schemes, but is now evolving in line with the pan-European trends.

Debit and credit cards

As underlined in section 9.2, card transactions have been steadily increasing in recent years (by 16% over the period 2017–18).[288] The rise in the use of cards in Italy is also confirmed by a recent study by Banca d'Italia on financial inclusion. The study shows that, when accounting for the diffusion of payment cards in the measure of financial inclusion, Italy shows a substantial increase in financial inclusion over the period analysed (2007–16), overtaking Spain and matching France.[289]

On average, Italians own a higher number of cards per capita than its other European counterparts (1.7 as opposed to 1.5).[290] This implies that Italian consumers typically have more cards to choose from when processing non-

[287] Oliver Wyman (2019), 'European consolidation in payments'.
[288] European Central Bank (2019), 'Payment Statistics', July, p. 7, table 7a.
[289] Nuzzo, G. and Piermattei, S. (2019), 'Measuring financial inclusion in the main euro area countries: the role of electronic cards', Banca d'Italia, Occasional Paper, July, No. 504, p. 29.
[290] Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2018/2019 – Italy', Statistical Report, p. 34.

cash in-store payments than the average European.[291] However, Italians do not use their cards as frequently as others. In 2018, Italian consumers made on average 35.7 transactions per card, while the European average was 66.[292]

Both international and domestic card schemes are active in Italy. Debit cards issued in Italy include PagoBancomat, Maestro, Mastercard, Visa Electron and V PAY brands, while credit cards include Visa, Mastercard, American Express and Diners Club.[293]

The three main debit card schemes in Italy are PagoBancomat, Mastercard and Visa, with PagoBancomat being the only domestic scheme.[294,295] Recently, with the introduction of contactless cards in 2007,[296] and especially their increased take-up in the last two years (+17% between 2017 and 2018),[297] international schemes have been increasing their market shares.[298] PagoBancomat started issuing contactless-enabled cards in 2014,[299] and there is only a very low share of PagoBancomat cards that are currently contactless-enabled. Thus, most contactless payments are automatically processed by terminals through international schemes.[300] This could change in the near future when PagoBancomat completes the rollout of its contactless cards.[301]

While the major banks in Italy all issue both PagoBancomat cards, co-badged with an international scheme,[302] and cards with international schemes only, new providers have focused on issuing cards with international schemes only.[303] Co-badging encourages competition among domestic and international card schemes because card schemes have to compete on price and quality in order to incentivise usage by customers. However, this dynamic has been changing with the advent of contactless technology, which is less widespread for the domestic scheme,[304] and on which international schemes are thus taking the lead.

Historically, merchants often set the POS to default to PagoBancomat when both this and an international scheme were available. However, the

[291] Most of the cards owned by Italian consumers are being used currently: in 2016, 98% of existing debit cards and 57% of existing credit cards were active. See Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2018/2019 – Italy', Statistical Report, p. 4; Banca d'Italia (2017), 'Payment System', Statistics, 27 October, p. 9, table 4.
[292] European Central Bank (2019), 'Payment statistics', Report, July, table 14.4,p. 73.
[293] Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2018/2019 – Italy', Statistical Report, p. 10.
[294] Oxera review of public data, including data published by Euromonitor and Worldpay.
[295] In 1995, the Italian banks through the ABI (Associazione Bancaria Italiana) established the association CO.GE.BAN (Convenzione per la gestione del marchio Bancomat) to oversee and support the development of the Bancomat and PagoBancomat systems in Italy. The Bancomat and PagoBancomat brands are used by most of the Italian banks. The system provides for common infrastructure, single-brand trademarks and a common set of rules and standards established by the ABI and the convention for the management of the Bancomat brand trademark. Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2018/2019 – Italy', Statistical Report.
[296] Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2018/2019 – Italy', Statistical Report, p. 11.
[297] Politecnico Milano – School of Management (2019), Osservatorio Mobile Payment & Commerce, "I pagamenti digitali con carta: a che punto siamo?", 14 March, p. 13.
[298] Oxera review of public data, including data published by Euromonitor and Worldpay.
[299] Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2018/2019 – Italy', Statistical Report, p.11.
[300] Oxera review of public data, including data published by Euromonitor and Worldpay
[301] See PagoBancomat website,'Le carte da sempre nel tuo portafoglio', accessed 5 February 2020.
[302] Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2018/2019 – Italy', Statistical Report, pp. 38–39.
[303] Data for 2006 shows that co-badged cards represented almost 80% of all cards issued in Italy. This value is much lower for credit cards, given that PagoBancomat is a debit card. According to ABI data, only around 16% of credit cards were co-branded in Italy in 2017. See Associazione Bancaria Italiana (2017), 'I sistemi di pagamento nella realta' italiana', p. 50.
[304] For example, Intesa San Paolo, the largest retail bank in Italy, introduced contactless PagoBancomat cards only in the second half of 2018. Affaitaliani.it (2018), 'Intesa Sanpaolo, pagamenti: anche le carte Bancomat diventano contactless'.

introduction of the IFR in 2015[305] has required merchants to give consumers a choice between schemes. Merchants provide choice by either (a) presenting the consumer with the terminal and allowing them to choose between options on the terminal, or (b) by asking consumers which scheme they would prefer, and then presenting the consumer with the terminal set on the chosen scheme.

Prepaid cards

Alongside debit and credit cards, prepaid cards are popular in Italy. As underlined in section 9.2, Italy is the leading prepaid card market in Europe. The number of prepaid cards in 2018 amounted to 27.5m, according to Banca d'Italia.[306]

In this market, Poste Italiane (the incumbent postal operator in Italy) is the main player, issuing approximately 60% of all prepaid cards.[307] These prepaid cards can be topped up by cash at any one of Poste Italiane's branches, online, or by card through ATMs. They are linked to the domestic ATM scheme Postamat for cash withdrawals, and for POS transactions (both in-store and online) to either Visa Electron or Mastercard.[308] They can therefore be used both online and abroad.

There are several reasons for Poste Italiane's high market share. Poste Italiane has historically been a trusted and recognised brand (with a widespread network of physical postal offices throughout the country, especially in rural areas) and, traditionally, Italian families have used savings and financial services provided by the postal operator.

The number of prepaid cards issued by Poste Italiane has increased steadily over the past few years (with a CAGR of 14% between 2012 and 2016 and of 19% between 2015 and 2016).[309] They are thus likely to continue to play an important role in Italy's payments market.

9.3.2 Competition between card schemes and other providers

The competitive dynamics between card schemes and other providers are driven by innovation. Technological changes have had a significant impact on the Italian payments industry, in particular with the rise of ecommerce, contactless cards and mobile payments.

- Contactless cards are quickly gaining in popularity in Italy. Although in 2016 the use of contactless payments was low by European standards, at 0.4% of all POS payments (as compared with an EU average of 0.9%),[310] the number of contactless cards issued in Italy has been increasing at a high rate in recent years (with a CAGR of 256% between 2014 and 2016).[311]

[305] 'Regulation (EU) 2015/751 of the European parliament and of the council on interchange fees for card-based payment transactions', *Official Journal of the European Union*, 29 April 2015,.
[306] Banca d'Italia (2019), 'Sistema dei pagamenti', Statistics, 22 May, p. 8, table 4.
[307] AGCOM (2009), 'Caratteristiche, diffusione e potenziale impatto concorrenziale sull'offerta di moneta elettronica', table 1.3, p. 32. Farinacci, A. (2018), 'Poste fa il tutto esaurito con la Postepay Evolution', Il Giornale, 20 December.
[308] Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2018/2019 – Italy', Statistical Report, p. 10. Poste Italiane also developed a domestic scheme, 'Postamat', which, in contrast to PagoBancomat, is available mainly for cash withdrawals at Poste Italiane's ATMs, rather than also retail POS payments. See https://www.poste.it/.
[309] Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2018/2019 – Italy', Statistical Report, p. 41, table 20.
[310] Esselink, H. and Hernández, L. (2017), 'The use of cash by households in the euro area', European Central Bank, Occasional Paper Series, No 201, November, p. 31.
[311] Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2018/2019 – Italy', Statistical Report, p. 34.

- As underlined in section 9.2.4, ecommerce is also quickly gaining in popularity, with revenues growing at an annual rate of 14% between 2014 and 2018.[312] This growth is increasing the strength of payment method alternatives to cards. Indeed, although cards are still the most common payment method used for online transactions by Italian e-shoppers, e-wallets come close in terms of popularity (see Figure 9.6).

- A key trend emerging within payments is the increasing use of mobile payments technology, for both in-store and remote payments. This has been facilitated by trends such as ecommerce and the increase in the penetration of smartphones in Italy (from 41% in 2013 to 62% in 2016),[313] as well as by major technological developments, such as the availability of mPOS terminals,[314] NFC, and the use of QR codes.

Alongside technological innovations, regulatory interventions are also encouraging the development of new payment methods. Indeed, the advent of PSD2 has enabled and will continue to enable the development of new propositions and business models of payment service providers that build on the existing interbank payment infrastructures, thus promoting further entry into the payments market. In particular, PSD2 has enabled the entry of PISPs such as Satispay, Sofort and Trustly, and AISPs such as Yolt and Utego.[315] As these build on the existing interbank payment infrastructure, further development due to PSD2 is likely to result in a shift from cards to interbank-based payment methods and the growth of 'fintech' payment initiators.

9.3.3 Emergence of new platforms making use of card and interbank infrastructure: the rise of e-wallets and alternative payment methods

Alongside the technological and regulatory changes listed above, there has recently been entry by a number of new payment methods in Italy. This includes e-wallets, domestic payment platforms and international digital banks.

We appreciate that e-wallets and mobile payments currently rely to a large extent on cards. However, access to interbank-based payment methods through these platforms can be expected to grow, especially due to the dynamics triggered by PSD2, as highlighted above.

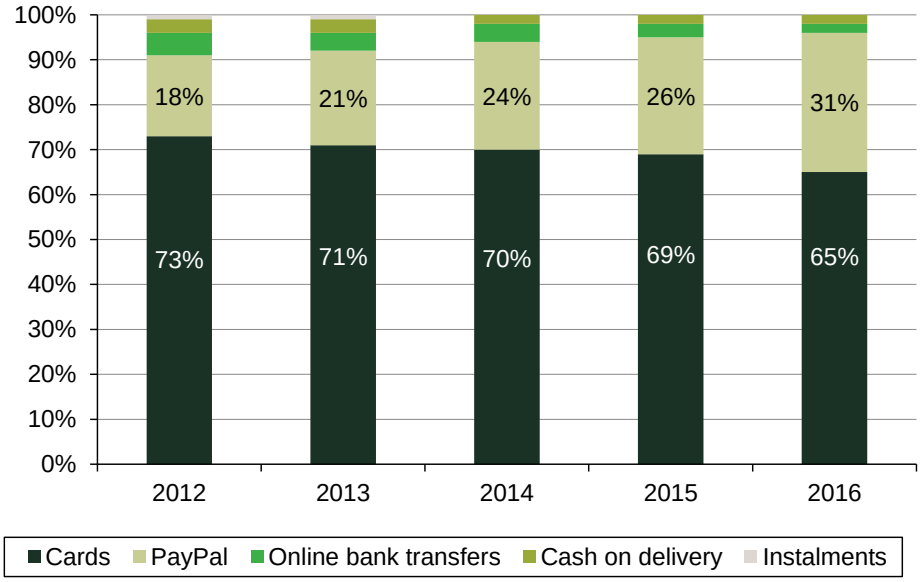
E-wallets

PayPal is the digital wallet with the highest share of ecommerce transactions (32%).[316] This may be due to the perception of high levels of safety and to a first-mover advantage that PayPal has enjoyed (it has been used since 2005 for purchases on eBay).[317] As is the case elsewhere in Europe, PayPal is available to Italian consumers for online payments and can be linked to credit,

[312] PostNord, 'E-commerce in Europe, Consumer Survey', reports 2014–18.
[313] Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2018/2019 – Italy', Statistical Report, p. 31.
[314] Between 2014 and 2015, the number of active mPOS terminals in Italy increased by 55%. See https://www.statista.com/statistics/697380/number-of-active-mobile-pos-in-italy/. The transaction value in the mPOS payments segment amounted to US$1,621m in 2019 and is expected to show an annual growth rate (CAGR 2019–23) of 32.2%. resulting in a total transaction value of US$4,950m by 2023. See https://www.statista.com/outlook/331/141/mobile-pos-payments/italy.
[315] CheBanca! Mediobanca Group, PSD2, https://www.chebanca.it/wps/wcm/connect/istituzionale/footer/psd2. Vannetti, E. and Riva, E. (2019), 'Arrivano le FinTech: eccon come cambia il mondo dei pagamenti', *Osservatorio Finanziario News*, 2 February.
[316] Politecnico Milano – School of Management (2019), Osservatorio Mobile Payment & Commerce, "I pagamenti digitali con carta: a che punto siamo?", 14 March, p. 18.
[317] Ideagrafica (2019), 'Metodi di Pagamento per l'E-Commerce', 28 January; Vaccaro S. (2017), 'The Success Story of PayPal', 30 August.

debit or prepaid cards and bank accounts. We understand that most top-ups are made using cards.[318] It should be noted that cards co-branded as PagoBancomat cannot be used to top up PayPal, and cards are topped up mostly with credit cards and non-PagoBancomat debit and prepaid cards.

Figure 9.9 Breakdown of online payment methods in Italy, 2012–2016



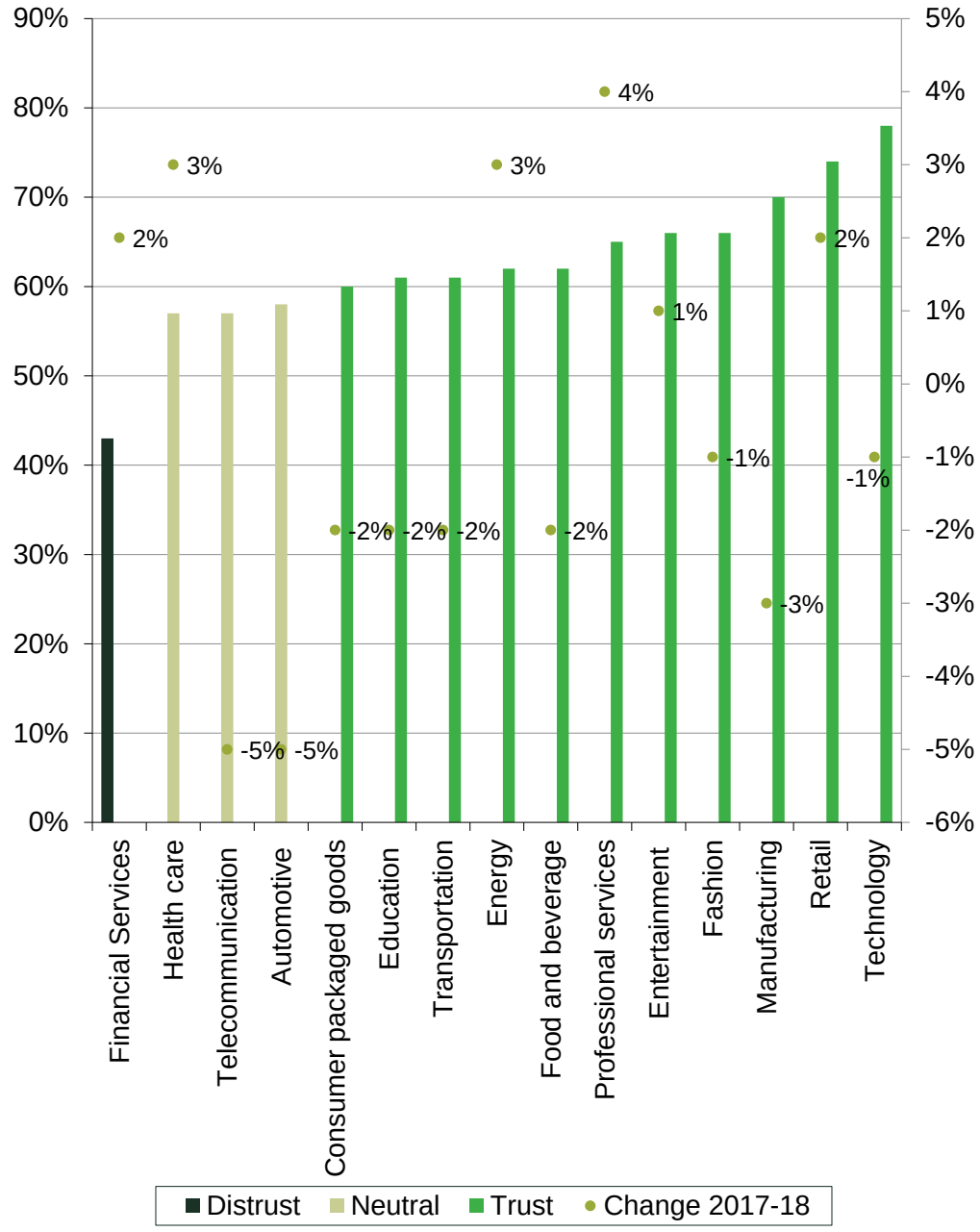
Source: Payment Industry Intelligence (2018), 'Payment Card Yearbooks 2018/2019 – Italy', Statistical Report, p. 31.

Other digital wallets and wider alternatives to cards are also emerging. Many international technology companies have introduced their own e-wallet services in Italy (e.g. Amazon Pay and Apple Pay in 2017, and Samsung Pay and Google Pay in 2018).

In this context, we note that while trust in financial services companies is low in Italy,[319] trust in technology companies is high (see Figure 9.10). Payment methods developed by technology companies therefore have the potential to enter and grow in the Italian market. However, it should be stressed that these methods are still at an early stage of development, and more time is needed to determine how the market will develop in the future.

[318] Given the prevalence of cards in Italy (as opposed to in Germany, for example), we understand that PayPal transactions tend to make use of card details more than direct transfers.
[319] Among a sample of 26 countries globally, Italy has the lowest level of trust, but comes fourth for trust in credit cards. Edelman Trust Barometer (2019), 'Financial Services'.

Figure 9.10 Italian consumers' trust by economic sector, 2018



Source: Edelman Trust Barometer (2018), 'Italy', p. 14.

Third-party payment initiators, such as Sofort and Trustly, are available in Italy. Unlike bank transfer-based payment methods, which act as front ends for payments carried out by a bank, these third parties access a customer's bank account using the username and password credentials provided by the customer, initiating a payment on the customer's behalf. As a result of PSD2, these providers can now access current accounts directly and initiate credit transfers more securely using open APIs provided by the bank.

Digital banks and other innovative digital payment methods

International digital banks such as N26 (which has been in Italy since 2017) are especially popular among younger generations.[320] These banks usually

[320] *Il Sole 24 Ore* (2019), 'I giovani target di N26, Revolut, Hype e Yap', 28 July.

issue cards connected to Visa or Mastercard rather than the domestic scheme. Similar to digital wallets, cards issued by digital banks can be linked to another bank account or can be topped up using other cards. N26 is the most successful digital bank so far, with a customer base in Italy of more than 300,000 as at the start of 2019.[321] The rapid increase in the customer base that N26 was able to reach in a period of just three years suggests that digital banking has untapped potential in the Italian market.

The high costs attached to traditional bank accounts, and the restrictions they usually place on online payments, might partly explain the fast increase in digital banking. Traditional banks usually require the payment of an annual fee (between €30 and €50) for a basic current account and charge different levels of fees for transfers, withdrawals and the issuance of credit/debit/prepaid cards.[322] By contrast, digital banks do not charge their customers any fee for opening an account, or for withdrawals or transfers. Therefore, the introduction of PSD2, combined with the entrance of new digital banks offering withdrawals free of charge, provides an alternative to cards that is free of charge for consumers to use.

The success of digital banking may also be due to the fact that debit cards issued by digital banks are usually linked to international card schemes,[323] which implies they can also be used for online payments. In contrast, debit cards issued under the PagoBancomat scheme by the most prominent traditional Italian banks (such as Intesa San Paolo and UniCredit) are mostly not available for online usage.

However, it should be stressed that digital banks are not yet well established, being still at an early stage of development. Nevertheless, the popularity they enjoy among younger people and the low cost attached to their services may lead to an increase of their relevance in the future.

Many domestic innovative digital payment platforms have gained in popularity. Examples include Satispay, Bancomat Pay and Hype. These methods rely more on inter-bank infrastructures rather than on cards. For example, one of the most successful new domestic payment methods is Satispay, which allows users to transfer money using their IBAN and phone numbers. Since the introduction of PSD2, Satispay's e-wallet no longer needs to be topped up: the app has real-time access to the user's bank account and can therefore automatically recharge the e-wallet.[324]

The domestic scheme, Bancomat, has also developed Bancomat Pay, a new digital payment platform, in response to the competitive pressure from the rise of new digital payment methods. Bancomat Pay, previously known as Jiffy, allows users to make instant credit transfers using inter-bank infrastructure and QR codes. In particular, QR codes allow this method to compete with cards and cash for in-store transactions. It has a customer base of more than 5m.[325]

[321] N26 (2017), 'Abbiamo raggiunto oltre 300.000 clienti in Italia'.
[322] See UniCredit: https://trasparenza.unicredit.it/pdfprod/CC128---Conto-Corrente-di-Base-UniCred_IT.pdf; Intesa San Paolo: https://www.intesasanpaolo.com/content/dam/vetrina/trasparenza/it/Documenti/Doc/Pdf/FI/FI-Other/FI-1906.pdf; UbiBanca: https://www.chebanca.it/wps/wcm/connect/c2b6a984-9e8e-41ce-88aa-ff6cbad17c7e/conto-corrente-base.pdf?MOD=AJPERES&CACHEID=c2b6a984-9e8e-41ce-88aa-ff6cbad17c7e.
[323] For example, N26 and Sofort issue Mastercard-only cards.
[324] Balestreri, G. (2017), 'A gennaio arriva la Psd2, la direttiva che puo' spazzare via banche e carte di credito', Business Insider Italia, 9 December.
[325] SIA (2018), 'Pagamenti digitali: Jiffy supera I 5 milioni di utenti in Itali', Comunicato Stampa, 4 June,.

Lastly, another important domestic player is Hype, a 'carta conto' linked to a mobile app developed by Banca Sella. At the start of 2019 it had reached a customer base of more than 600,000.[326]

As the methods described above become more popular, consumers may become more reliant on bank transfer-based payment methods.

Table 9.1 sets out examples of alternative payment methods available in Italy.

Table 9.1 Summary of new payment methods in Italy

Payment method	Description	International/ domestic
E-wallets		
Amazon Pay	Amazon launched its e-wallet, AmazonPay, in Italy in 2017.[327] This simplifies the payment procedure by allowing customers to use the information already memorised in their Amazon accounts.[328] Buyers choose a shipping address and payment method stored in their Amazon account.[329]	International
Apple Pay	Apple launched its e-walled, Apple Pay, in Italy in May 2017. This can be used for payments within apps or for in-store payments, transforming a mobile phone into a credit card using the contactless technology. The in-store service is available for iPhone 6 onwards.[330]	International
Samsung Pay	Samsung launched its e-wallet, Samsung Pay, in Italy in March 2018 after the introduction of Apple Pay in the Italian market.[331]	International
Google Pay	Google launched its e-wallet, Google Pay, in Italy in 2018 after Apple Pay and Samsung Pay were launched. To use the Google Pay contactless technology, an Android smartphone is needed. N26, Poste Italiane, Hype, Boon, Nexi, Revolut, Iccrea and Widiba are part of the Google Pay network.[332]	International
PayPal	PayPal has been available in Italy since 2005. It is possible to use PayPal for online payments, to make transfers and to receive money from a single e-wallet. A PayPal app for Windows Phone, iPhone and Android is available.[333]	International
Digital banks and other innovative digital payment methods		
N26	N26 is a mobile bank. Its mobile app launched in Italy in 2017 after its launch in Germany, and can run on both iOS and Android phones.[334]	International
Hype	Hype is a 'carta conto' launched by Banca Sella that is linked to a mobile application (iOS, Android, Windows Phone). The card has no commission fees attached. It works both for peer-to-peer transfer and for in-store and online payments.[335]	Domestic
Sofort/Klarna	Sofort is a third-party payment initiator that uses screen-scraping techniques to access customers' current accounts and use credit transfers to make online payments. It was acquired by Klarna in 2014. Sofort has enabled payments via instant transfers in Italy	International

[326] SellaNews (2019), 'Hype supera i 600 mila clienti'.
[327] 'Amazon Pay brings out its services in France, Italy and Spain', 18 April 2017.
[328] See https://pay.amazon.it/shopper.
[329] See https://developer.amazon.com/docs/amazon-pay-hosted/intro.html.
[330] Salvioli, L. (2017), 'Apple Pay da oggi in Italia: ecco come funziona e con quali banche', Il sole 24 Ore, 17 May.
[331] Cosimi, S. (2018), 'Arriva Samsung Pay: pronto al decollo ufficiale', *La Repubblica*, 22 March.
[332] Longhitano, L. (2018), 'Google Pay arriva in Italia, disponibile su siti, app e negozi fisici', *La Stampa*, 19 September.
[333] *The Italian Times* (2019), 'Pay Pal 2019: co'è e come funziona'.
[334] Economics (2019), 'N26 la prima banca in uno smartphone sbarca nel Belpaese', Il sole 24 Ore, 18 July.
[335] Hype, La carta digitale, http://www.ematdigitalmarketing.com/carta-hype/.

Payment method	Description	International/ domestic
	since 2013.[336]	
Revolut	Revolut is a mobile banking app offering a range of digital services including prepaid debit cards, money transfers, vaults for budgeting and saving money, mobile phones and overseas medical insurance.[337] It offers the option to make transfers at zero cost and provides an IBAN for receiving payroll.[338]	International
Trustly	Trustly is a third-party payment initiator that uses screen-scraping techniques to access customers' current accounts and use credit transfers to make online payments. It enables payments via instant transfers.[339]	International
Satispay	Satispay was launched in 2015 in Italy. It is a payment app that enables the user to make money transfers without needing a credit or debit card or a device with NFC technology. It is sufficient to insert an IBAN of a current account and a phone number. It is possible to use Satispay for a number of services: peer-to-peer transactions, in-store payments, online payments, donations, payments for government purposes (e.g. fines and taxes), and phone charges.[340]	Domestic
Bancomat Pay	Bancomat Pay, previously known as Jiffy, is a service developed by SIA to make instant credit transfers using inter-bank infrastructure. To use the service, a consumer needs to have a bank account in one of the participant banks (more than 130 banks have joined the system, including BNL, Intesa Sanpaolo and UniCredit). The in-store payment takes place via QR codes. Bancomat Pay can also be used for peer-to-peer transfers.[341]	Domestic
PostePay	The mobile PostePay app allows users to send money peer to peer, pay contactless via GooglePay, make ecommerce payments with Masterpass, and make payments to companies that have an account with Poste Italiane.[342]	Domestic
SisalPay	Sisalpay enables the payment of a number of services, such as fines, mobile phone top-ups, bills and levies, and medical and transport services. SisalPay also offers a prepaid card (branded Mastercard) 'carta conto' (i.e. associated with an IBAN), for which it requires the payment of an annual fee of €5.[343]	Domestic

Source: Journal articles and payment services websites listed in the footnotes.

9.4 Conclusions

There is a diverse payments landscape in Italy, characterised by merchants and cardholders with a wide range of payment options. The strong positions of cash as well as the national debit card scheme, PagoBancomat, the relatively low usage of credit cards, and a heavy use of prepaid cards and digital wallets for online transactions are particular characteristics of the Italian market. PagoBancomat, which is typically co-badged with Maestro or VisaElectron-Vpay, is a multi-homing device as cardholders can opt between the national and international schemes when making a transaction in store.

While Italy starts from a position of being unusually dependent on cash, prepaid and domestic schemes, it is now evolving in line with pan-European trends. Internet-based payment providers, both global (such as PayPal) and local (such as Satispay), continue to disrupt the competitive landscape. New,

[336] Sofort banking, https://pagare.online/sofort-banking/. Klarna, https://www.klarna.com/uk/.
[337] Russon, M.A. (2019), 'What is Revolut?', Business reporter, *BBC News*, 2 April,.
[338] Di Turi, N. (2017), 'Bonifici e prelievi gratis in tutto il mondo, arrivano le carte Revolut e Circle', *Il Corriere della Sera*, 21 September.
[339] Trustly, https://trustly.com/en/, accessed 2 August 2019.
[340] Adonopoulos, G. (2018), 'Satispay: come funziona, costi e cosa si puo' pagare', 19 July.
[341] Jiffy, http://jiffy.sia.eu/doc/cs/it/cs_sia_jiffy_5_milioni_utenti_it.pdf.
[342] Poste Italiane, App Postpay, https://www.poste.it/applicazione-postepay.html
[343] SisalPay, FAQ, https://www.sisalpay.it/about/domande-frequenti.

innovative providers such as Apple and Google have launched their own payment services. This, coupled with the changing regulatory landscape (PSD2), exerts competitive pressure on the payment ecosystem in relation to the provision of services to both merchants and cardholders.

With the declining significance of cash opening up space for firms to enter the market or expand their business, the pressure on firms to innovate and compete in order to provide the best payments services is likely to increase.

10 Competition for the provision of payment services in the United Kingdom

10.1 Introduction and key messages

- Although the use of cards has increased in the UK and card penetration is higher in the UK than in other European countries, cash remains an important payment method.
- Recent regulatory shifts in the UK have facilitated further competition and opened up ACH schemes, thereby increasing the use of credit transfer-based payment methods for retail payments.
- The rise of e-commerce, digital wallets and card innovation, coupled with high smartphone penetration, has meant that the UK has also been fast to adopt mobile payments.
- Many digital wallets and mobile payment methods already provide the customer with access to cards alongside ACH infrastructure and 'on us' transactions. As such, the next wave of competition in UK payments will not just be between international card providers and cash, but also with new payment methods and digital wallets, and competition with 'on-us' transactions and interbank infrastructure within the digital wallets.

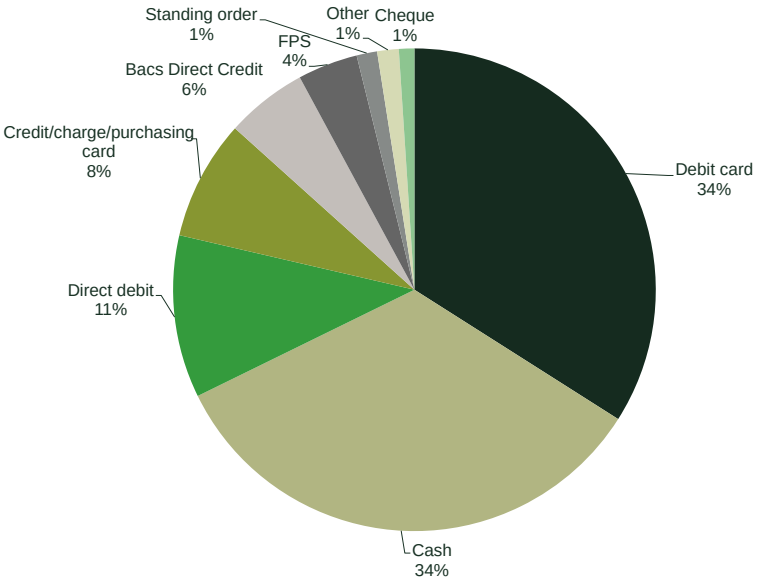
10.2 Market background

As shown in Figure 10.1 below, customers in the UK use a variety of different payment methods. In 2017, the majority of payments were made by cash or debit cards, but a significant number of payments were made via Bacs (credit transfers and direct debit), credit card, or the faster payment service (FPS), which processes bank payments made online.

The choice of payment methods tends to be sector-specific. For example, in certain merchant segments where customers make repeat payments (e.g. utility companies, subscriptions, rent, charity payments), direct debit or credit transfers are popular payment methods. For instance, 63% of UK customers paid for their electricity bill using direct debit, and the equivalent figure for gas was 66%.[344] Similarly, when making bulk payments, employers will often use BACs—for instance, eight in ten employees in the UK are paid via Bacs Direct Credit, and the government uses Bacs Direct Credit to pay nearly all state benefits and pensions in the UK.[345]

[344] Department for Business, Energy & Industrial Strategy (2018), 'Quarterly energy prices', June, Chart 2.4.
[345] UK Finance (2018), 'UK Payment Markets Summary'.

Figure 10.1 Breakdown of total payment methods in the UK (by volume), 2018

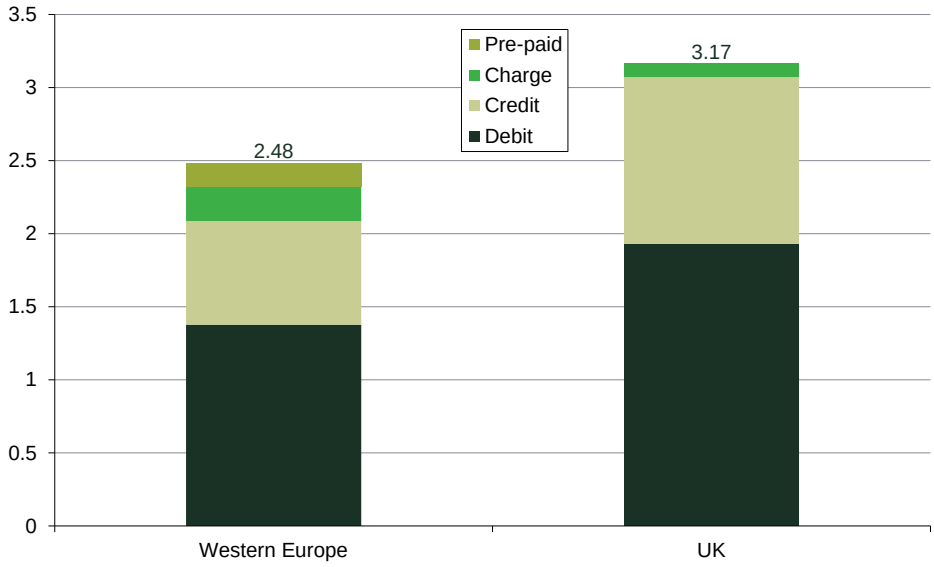


Note: Direct debit is a method of payment that is commonly used for utility and other regular bills, rent and charity payments. Bacs Direct Credit is commonly used by employers for bulk payments. Other payment methods include (but are not limited to) online and mobile payments methods such as PayPal, Apple Pay, Google Pay and Samsung Pay.

Source: UK Finance (2018), 'UK Payments Market Summary 2018'.

In 2017, debit cards overtook cash as the most common payment method in the UK, with 98% of the population holding a debit card.[346] On average, card penetration in the UK is greater than the Western European average, both overall and in terms of credit and debit cards (see Figure 10.2 below). Unlike in some other European countries, there are no domestic card schemes.

Figure 10.2 Average cards per adult in Western Europe and the UK, 2016



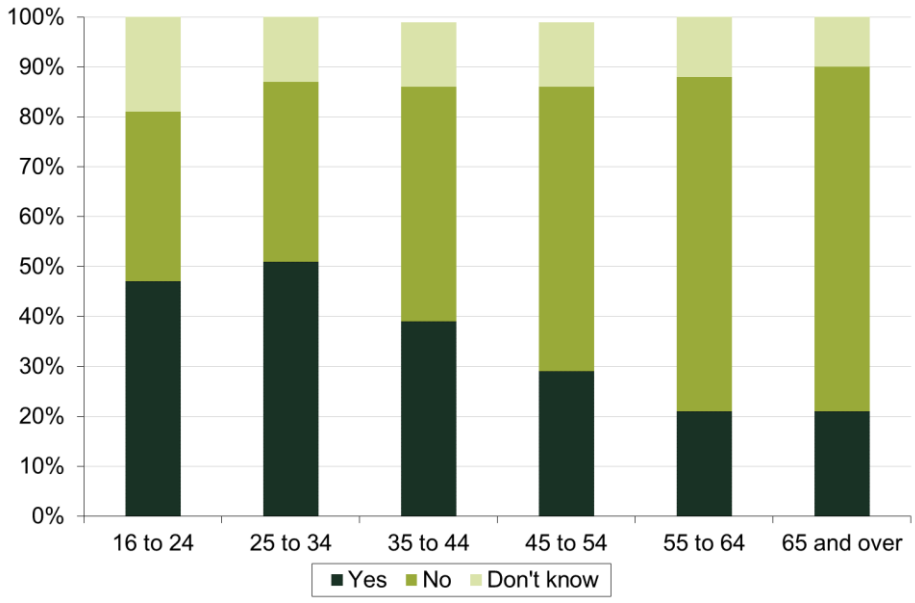
Note: For the UK, the number of cards per adult is likely to be underestimated due to the absence of prepaid cards in the underlying data from the UK Cards Association.

[346] UK Finance (2018), 'UK Payment Markets Summary', p. 3.

Source: *Western Europe*: Oxera analysis of RBR data provided by Mastercard. *UK*: UK Cards Association (number of cards) and Office for National Statistics (number of adults).

However, despite the decline in the use of cash relative to cards, cash is considered likely to remain an important payment method.[347] In 2017, 2.2m customers preferred cash as their main payment method, even though 92% of them also owned cards.[348] In 2018, a Mintel survey conducted for the PSR asked consumers whether they would be comfortable with the idea of a cashless society (see Figure 10.3). More than 50% of the people above the age of 45 indicated that they preferred to have the option of using cash. Even for the 16–44 age group, more than 34% expressed similar views.[349]

Figure 10.3 Attitudes towards non-cash payment methods by demographic, February 2018



Note: Lightspeed/Mintel survey question: 'I am comfortable with the idea of a cashless society'. Base: 2,000 Internet users aged 16 or over.

Source: Payment Systems Regulator (2018), 'Contactless mobile payments', July, p. 24.

Although FPS represented a relatively small proportion of UK payments in 2017, both Open Banking and PSD2 may see increased volumes of FPS over the next few years, as explained in more detail in section 10.3 below.[350]

Similarly, although digital wallets and mobile payment methods such as PayPal, Apple Pay, Google Pay and Samsung Pay represent a relatively small proportion of UK payments in 2017, this is a growing part of the market, as explained in more detail in section 10.4.

10.3 Open banking and regulatory developments

There have been a number of significant regulatory shifts in the UK recent years.

First, like the rest of the EU, PSD2 has been and continues to be an important contributor to the changing nature of the payments landscape.[351] Indeed, the

[347] UK Finance (2018), 'UK Payment Markets Summary', p. 4.
[348] Ibid., p. 4.
[349] PSR (2018), 'Contactless mobile payments', July, p. 24.
[350] UK Finance, 'UK Payments Market Summary 2018'.
[351] See section 3.4.2.

UK has accelerated the introduction of many of the requirements of this Directive owing to measures undertaken following the CMA's retail banking market investigation (the 'Open Banking' initiatives).[352]

As explained earlier in this report, this initiative aims to open up payments markets to new entrants by requiring banks to provide third-party providers with access to their customers' accounts through open banking application programming interfaces (APIs). This will lower barriers to entry in the UK, and elsewhere in Europe, by allowing third-party providers to build services on top of a bank's existing data and infrastructure. Specifically, as explained in section 3, this will allow i) Account Information Service Providers (AISPs) to aggregate a customer's accounts in one place and ii) Payment Initiation Service Providers (PISPs) to provide an alternative route to merchants using existing bank infrastructure (ACH).

The UK already has 69 registered AISPs and 27 PISPs.[353] Both the payments company Adyen and Mastercard have chosen the UK for the launch of their new services, both of which take advantage of the PSD2 access requirements and provide direct APIs into the (UK) banks, enabling consumers to pay using credit transfers at online retailers.[354]

Furthermore, existing ACH schemes (namely BACS and FPS) are now being operated by a new system operator, 'Pay.UK', with the aim of making these schemes robust and resilient, end user-focused, agile, innovative, accessible, and efficient.[355] As part of this, Pay.UK has taken on responsibility for the introduction of the New Payments Architecture (NPA), a new model for the future development of the UK's retail payment infrastructure, ensuring payments are safe while also encouraging competitive innovation.[356]

Pay.UK is also looking to introduce 'Confirmation of Payee', which is a way of giving end users of credit transfers greater assurance that they are sending their payments to the intended recipient,[357] and 'Request to Pay', a service that will enable people, businesses, and organisations to 'request' payment for a bill, rather than sending an invoice.[358]

By making these existing ACH products more attractive to businesses and consumers, they will become more competitive back-end alternatives to card products for digital wallets and merchant payment services (such as Amazon Pay and Tesco Pay).

In addition, the UK is unique in Europe in having a dedicated payments regulator (the Payment Systems Regulator, PSR). The PSR has the following objectives.[359]

[352] For example, see Competition and Markets Authority (2016), 'Making banks work harder for you: an overview of the retail banking market investigation', 9 August.
[353] FCA (2019), 'The Financial Services Register', accessed 27 February.
[354] Mastercard's service comes with a sophisticated fraud monitoring service and a dedicated dispute resolution system. Mastercard will launch its service in the UK and Poland first before rolling it out to the rest of Europe. Adyen will launch its service in the UK first, with scope for roll out to other European markets. See Mastercard (2018), 'Mastercard unveils solutions to underpin open banking transformation', press release, 5 June; Dunsby, S. (2019), 'Adyen launches a new payment method powered by open banking', London Loves Business, 21 February.
[355] Pay.UK (2019), 'Who We Are', accessed 27 February.
[356] Pay.UK (2019), 'New Payments Architecture Programme', accessed 27 February.
[357] 'Pay.UK (2019), 'Confirmation of Payee', accessed 27 February.
[358] Pay.UK, 'Request to Pay', accessed 27 February.
[359] PSR (2019), 'The PSR Purpose', accessed 27 February.

- to ensure that payment systems are operated and developed in a way that considers and promotes the interests of all the businesses and consumers that use them;
- to promote effective competition in the markets for payment systems and services—between operators, PSPs and infrastructure providers;
- to promote the development of and innovation in payment systems, in particular the infrastructure used to operate those systems.

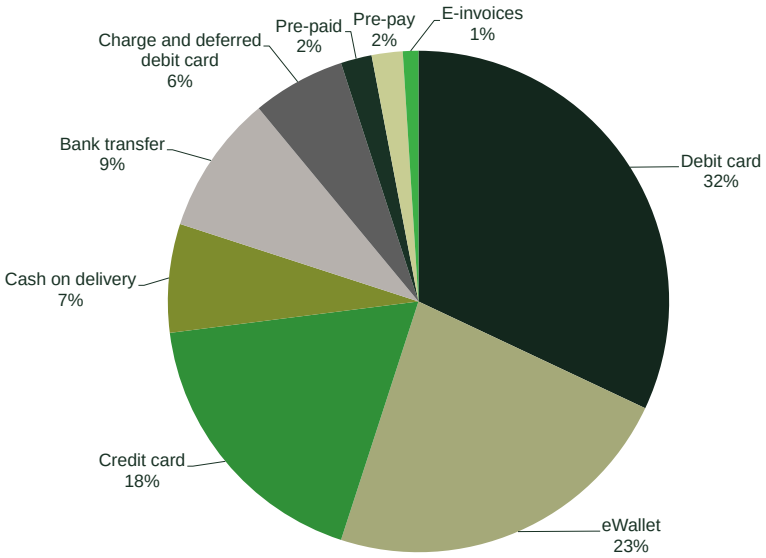
10.4 Key UK trends

10.4.1 E-commerce and digital wallets

The UK e-commerce market is one of the most developed in Europe and is projected to continue to grow rapidly in the near future,[360] with an increase in turnover from $225bn in 2018 to $314bn in 2022.[361] Along with high rates of Internet access and high smartphone penetration,[362] the growth of the 'sharing economy'—referring to the growth of 'peer-to-peer' transactions through services like Uber and Airbnb—has also contributed to the expansion of online spending.[363]

Digital wallets play an important role in e-commerce payments in the UK. As demonstrated in Figure 10.4, payments via digital wallets now account for 25% of e-commerce transactions in the UK.

Figure 10.4 UK split of online retail payments, 2017



Source: Oxera analysis based on Worldpay (2018), 'Global Payments Report', November.

PayPal, for example, plays an important role in e-wallet payment provisions in the UK, with 20m UK consumers using PayPal each year.[364] Although PayPal operates across the EEA, the UK is one of its main markets, accounting for c. 35% of its EU revenues.[365] UK PayPal customers can make payments on

[360] Enterprise Europe Network (2018), 'A guide to e-commerce in Europe', accessed 27 February.
[361] Worldpay (2018), 'Global Payment Report', November.
[362] Econsultancy (2012), 'Five reasons why the UK leads the world for ecommerce'.
[363] The UK Cards Association (2017), 'UK Card Payments Summary 2017', p. 3.
[364] PayPal website, https://www.paypal.com/uk/home.
[365] Warner, J. (2018), 'Where next for PayPal and PayPal shares?', IG, 30 April, accessed 28 February.

millions of sites and can apply for PayPal Credit, which functions in a similar way to a credit card.[366] As explained in section 4, PayPal entered the UK market in the early 2000s by offering unique consumer convenience; once registered, only a username and password are required to make a payment, and address details are automatically provided to the retailer. A customer using PayPal can either transfer money directly from a bank account to their PayPal account, or link a payment card to the account. In addition, if both the payer and payee have a PayPal account, then the payment can be made using the PayPal balance, which removes the need for external payment processing (referred to as 'on-us' e-money transactions). Similarly, PayPal is also introducing a service whereby users can pay using rewards points at PayPal Merchants.[367]

Although PayPal is the major digital wallet provider in the UK, other businesses are developing merchant-specific digital wallets. For example, by linking to the customers' debit and credit cards, Amazon Pay allows Amazon customers in the UK to pay for products and services at online retailers.[368] Another example is Tesco Pay+, an app which allows users to make payments in Tesco, as well as to collect Tesco Clubcard points and track expenditure. As the UK's largest retailer, as well as a retail bank, Tesco is well positioned to leverage its existing customer base. This combination means that Tesco Pay+ could become a significant player in UK payments.

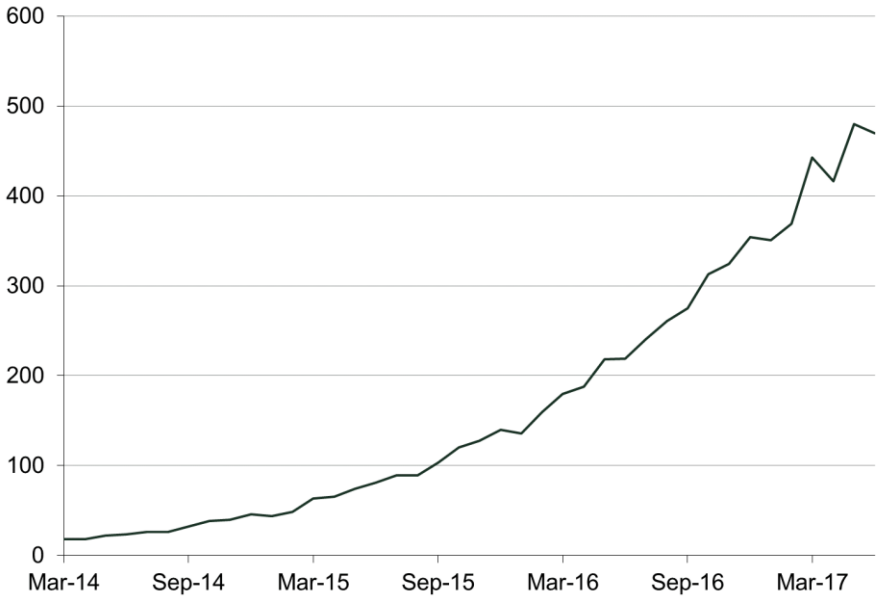
The increasing importance of digital wallets in the UK not only increases front-end competition but also creates back-end competition (see section 6). This is because digital wallets can be loaded with or make use of different underlying payment methods (for example, one can currently use card, direct debits and credit transfers from bank accounts). As such, the digital wallets tend to own the relationship with the consumer and therefore have the option of 'steering' them towards using certain payment methods to load the wallet, negotiating with card schemes and banks on the fees, or bypassing the other payment methods altogether, using access under PSD2. Internalising more transactions and steering customers towards using credit transfers reduces digital wallets' costs, improving their competitive position in the market. Although standard credit transfers themselves are irrevocable and do not provide consumer protection (e.g. against non-delivery of the ordered goods), when using credit transfers (or direct debits) to load a PayPal or Amazon Pay wallet, the PayPal or Amazon Pay transactions come with consumer protection. Again, this enables the digital wallets to compete directly with existing card products.

10.4.2 Rise of contactless payments

The UK is one of the leaders in the uptake of contactless payments. Contactless payments allow customers to make payments by card without PIN authorisation, allowing for a quicker and more convenient transaction. As illustrated in Figure 10.5, the number of contactless transactions has been growing significantly in recent years,[369] with almost one in two in-store card transactions now contactless.[370] This trend is set to increase in line with the commitment of card schemes to ensure that every payment terminal in the UK is capable of accepting contactless payments by January 2020.[371]

[366] See PayPal website, https://www.paypal.com/uk/webapps/mpp/buying-online.
[367] PayPal (2019), 'PayPal Q4-18 Investor Update', 30 January, accessed 28 February.
[368] See Amazon Pay website, https://pay.amazon.com/uk/shopper, accessed 30 January.
[369] UK Finance (2017), 'Contactless 10 year report', September.
[370] Mastercard (2018), 'Almost 1 in 2 UK transactions are now contactless', press release.
[371] Payments UK (2017), 'UK Payment Markets: Summary', p. 4.

Figure 10.5 Number of monthly contactless transactions (m), 2014–2017



Source: UK Finance.

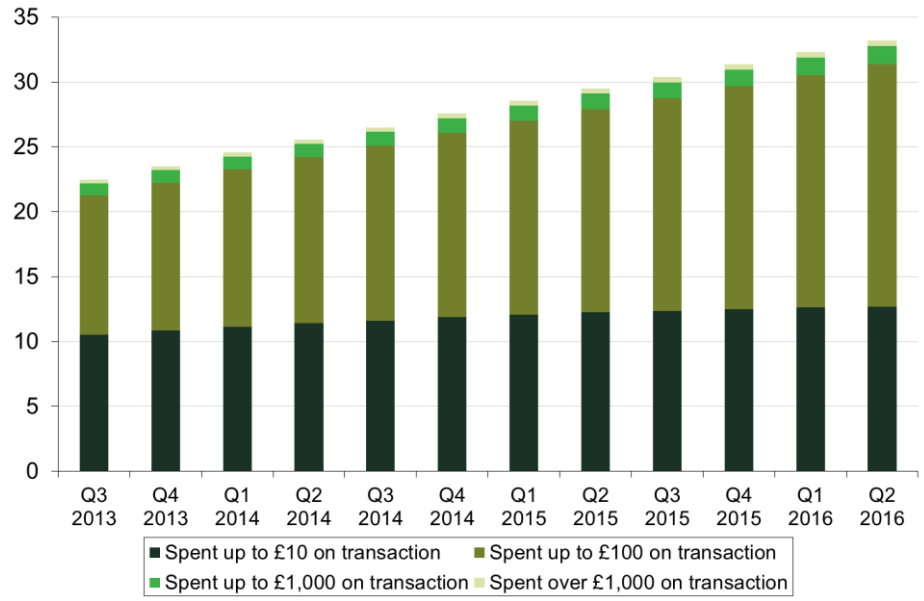
10.4.3 Rise of mobile payments

The combination of the above trends—high card holding, high contactless adoption, high adoption of digital services, and with relatively high smartphone penetration—has meant that the UK has been very fast to adopt mobile payments, which come in many forms.

In 2016, more than half (53%) of online payments were made using tablets and smartphones, up from 26% in 2013. The use of mobile payment methods (such as Apple Pay, Samsung Pay and Google Pay) is also growing very rapidly, increasing to some 126m payments in 2017, a four-fold rise compared with 2016.[372] The rise in the number of users, as well as the composition of transactions, is depicted in Figure 10.6.

[372] Worldpay (2018), 'Tipping point for "tap and go" as mobile payments top £975 million', 1 March, accessed 27 February.

Figure 10.6 Number of mobile commerce users by amount spent (m), 2013–2016



Source: Statista (2016), 'Number of m-commerce users in the United Kingdom (UK) from Q3 2013 to Q2 2016, by amount spent (in million users)', accessed 28 February.

When paying through a mobile phone or tablet, customers have a number of different payment methods available to them, some of which are currently card-based. Others also allow the user a choice of non-card payment methods.

- **Card payment methods:** mobile phones are increasingly used to initiate contactless card payments for physical transactions, through Apple Pay, Google Pay, and Samsung Pay. These methods can also be used to facilitate card payments online. In addition, there are store-specific payment methods such as Tesco Pay+, Caffè Nero Pay, and the Starbucks app, which link to a customer's payment cards and allow the customer to make payments (and collect rewards) at that store
- **Non-card payment methods:** The PayPal mobile and Klarna app both allow users to pay using their mobile either by using a card or through their bank account. In addition, if both the payer and the payee have an account with Klarna or PayPal, the payment can be made with the existing Klarna/PayPal balance (i.e. an 'on-us' transaction), which removes the need for external payment processing. In addition, the 'Pay By Bank' app allows users to pay directly from their bank app, without having to enter any payment details.[373]

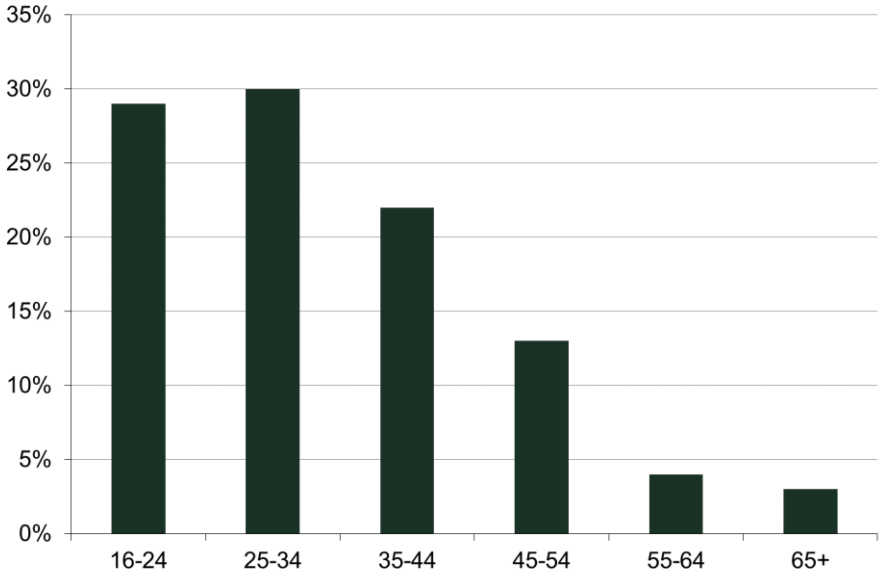
In addition, we note that banks' own apps are also used widely in the UK to facilitate person-to-person payments. Paym, a mobile payment system set up by and integrated with 15 UK banks and building societies, was launched in the UK in 2014 to facilitate person-to-person payments using just a registered UK mobile number. The system now processes c. £800m in transactions per year and has over 4m registered users.

Mobile payments are expected to grow in the future, driven, at least in part, by high adoption rates among the young.[374] For instance, as illustrated in the

[373] See https://paybybankapp.mastercard.co.uk/.
[374] PSR (2018), 'Discussion paper: Data in the payments industry', June.

figure below, users aged between 16 and 34 account for around 60% of Apple Pay's and Android Pay's users in the UK.

Figure 10.7 Apple Pay and Android Pay users by age range (% of users), 2016



Source: Statista (2018), 'Apple Pay and Android Pay user penetration rates in the United Kingdom (UK) 2016, by age'.

10.5 Conclusions

The growth of e-commerce has seen a rise in digital wallets, such as PayPal, as well as merchant specific payment services. This, coupled with the rise of contactless payments, has in part led to a growth in mobile payments, which also offer a digital wallet service on a customer's smartphone. The growth of digital wallets facilitates both front-end and back-end competition.

Front-end competition between different payment methods is encouraged by the fact that customers can easily select which payment method they would like to use at the POS.

With regard to back-end competition, many digital wallets currently allow customers to choose to pay using card products, through their bank (i.e. using credit transfers or direct debits) or, when both payer and payee have relevant digital wallet accounts, using an 'on-us' e-money transaction. Those that currently do not could do so in the future. Given that the digital wallets tend to own the relationship with the customer, they can therefore 'steer' them towards using certain payment methods to load the wallet, and negotiate with card schemes and banks on the fees or bypass the other payment methods altogether. Front-end and back-end competition are also being facilitated by UK regulators. The acceleration of PSD2 through the open banking initiatives will allow account aggregators third-party access to customers' accounts, which means that customers can see all their accounts in one place. This could mean that customers can easily choose between payment methods at the POS.

With regard to back-end competition, PSD2 allows PISPs to provide an alternative route to merchants using existing bank infrastructure (ACH). In addition, Pay.UK is making ACH infrastructure more attractive to businesses and consumers through the introduction of 'confirmation of payee' and 'request

to pay', which means that ACH schemes will become a more convenient and competitive back-end alternative to card products for digital wallets and merchant payment services.

As such, the next wave of competition in UK payments will not just be between international card providers and cash, but also with digital wallets (using different payment products and underlying infrastructures) and 'on us' transactions within digital wallets.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