

# Agenda

## Advancing economics in business

### ‘Money-go-round’: insights into the economics and regulation of payment systems

In the last decade, the payment services sector has seen considerable technological change and has been subject to much regulatory reform and intervention. The European Commission has recently proposed revisions to the Payment Services Directive, which was initially adopted in 2009, to improve the functioning of the European market for payment services. In the UK, a sector regulator for payment systems is being established. Moreover, a number of high-profile competition investigations into payment service providers have taken place.

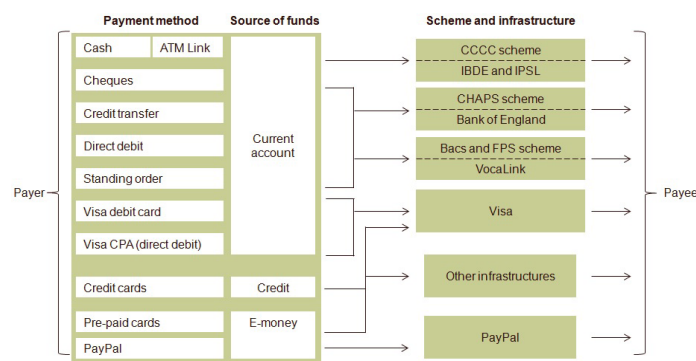
Payment systems are a central part of the financial infrastructure and are crucial to the functioning of all major economies. Every day, a vast number of financial transactions are undertaken via a broad range of payment systems.<sup>1</sup> This article explores some of the key economic aspects of payment systems markets and what they imply for the design of regulatory approaches.

The payment services sector is complex and involves many different functions, providers and ownership links. This complexity may give rise to significant regulatory challenges, and it is therefore important that regulators have an in-depth understanding of the value chain of the market they regulate. There is currently no comprehensive value chain analysis available for payment services sector.<sup>2</sup> While this article does not attempt to close this gap, it provides a short description of some of the key elements of a typical payment system, focusing on the elements that are most relevant to the concepts discussed in this article: innovation and access.

### What is the value chain for payment systems?

Payment systems generally consist of payment methods (i.e. the means of authorising and submitting payments), payment schemes that define the sets of rules and standards for transactions (including technical standards), payment service providers and interbank funds transfer systems (including the physical infrastructure that is used to process the transactions). Figure 1 shows some of the payment methods that are available to households and companies in the UK to make and receive payments, alongside the schemes and infrastructures they rely on.

**Figure 1 Payment products, schemes and infrastructures in the UK**



Note: This figure highlights the main payment methods, but is not exhaustive since, for example, many different e-money products are available but not presented here. The settlement layer has also been excluded from the figure, which, for most payment systems, ultimately takes place at the central bank.

Source: Oxera.

As indicated in Figure 1, different payment methods draw on different sources of funding. For example, several payment products enable access to the payer’s payment account (typically their current account—including an overdraft facility). A credit card product relies on credit, which is typically repaid by a credit transfer, direct debit or cheque. Some e-money providers, such as PayPal, use a closed loop system where transfers of value take place ‘across the books’ of the provider but rely on other payment methods (credit/debit transfers or cards) in order for funds to be transferred to or away from the e-money provider’s system.

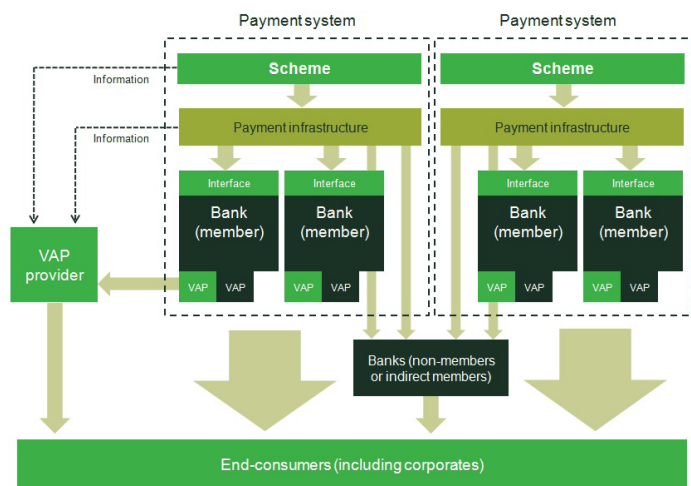
The payments sector has seen a range of innovations and entry by new providers in recent years. Various e-wallet products (such as Google Wallet), specific methods for payments over the Internet (such as iDEAL in the

Netherlands) and mobile payment services and applications (such as Paym and Zapp in the UK) have been introduced. Other innovations include payment services that rely to a much lesser extent on existing banking infrastructure, in particular in regions where only a small share of the population is using a bank account. For example, Vodafone’s M-Pesa—which was launched in Kenya in 2007—offers a secure SMS-based means of payment for people who would otherwise not have easy access to banking services.<sup>3</sup>

The various activities of a payment system are undertaken by different parties in the value chain. In the case of payment methods such as credit transfers, direct debits and debit card transactions, these are typically authorised by banks, with the processing (clearing) done by an infrastructure provider (such as VocaLink in the UK, or VISA), and the final settlement between the different banks taking place at the central bank. There are other activities and parties in this value chain: providers of payment terminals to retailers; specific tools to analyse payment transactions; connectivity services; and the Internet and mobile phone interfaces that banks offer to their customers.

Figure 2 presents a simplified overview of a typical payments industry. It highlights some of the layers of the value chain and the aspects that are most relevant to the discussion of innovation and access in this article.

**Figure 2 Overview of the interaction between the different parties in payment systems**



Note: The two payment systems shown in the figure could be based on the same payment method or on different payment methods.  
Source: Oxera.

The figure shows the schemes that provide the legal framework and set the rules of transactions (in relation to settlement, authorisation, standards for communication, etc.), and, separately, the infrastructure provider which typically operates on the basis of a contract with the scheme.

There are different ways in which banks (or other financial institutions) can connect to the payment system. A bank can

become a member of the payment scheme, and connect directly to its infrastructure (which requires investment in back-office interface infrastructure). These members are referred to as direct members. Alternatively, a member can access the payment system indirectly via another (direct) member. Banks that are not members of the payment scheme can therefore obtain access via direct members.

In the retail market, banks also provide value-added products (VAPs) in addition to the payment service (e.g. payment terminals). Some of these products are offered by third-party providers that compete with banks in this segment of the retail market. Independent VAP providers generally require access to information on scheme and infrastructure standards in order to deliver their products and services.

As noted above, Figures 1 and 2 provide only a simplified illustration of certain aspects of the value chain of payment services. However, it is important to note that the payment systems sector can be represented in a variety of ways, depending on the focus of the analysis. Such alternative representations can focus on governance relationships and ownership, or on the distribution of costs along the value chain. For example, while much of the regulatory debate has historically focused on the infrastructure layer of the value chain, depending on the product, this layer may account for only a small proportion of the total costs of making a payment.<sup>4</sup> While these issues are also relevant to the understanding of a payments system and the design of regulatory approaches, they are not discussed further in this article.

## Innovation

Innovation plays a key role in the context of payment systems. Two types of innovation can be distinguished: unilateral and collective. The incentives to engage in these differ, as do their likely customer benefits, wider consequences and potential regulatory approaches.

In the case of unilateral innovation, the benefits accrue directly to one party and this party will also bear the costs of adopting the innovation. These innovations are most likely to take place outside the core of any payment system—i.e. at the level of the payment system participants or service users. For example, in 2012 Barclays introduced, largely unilaterally, Pingit, a payment system initially designed to enable payments between the bank’s current-account holders. Pingit is now available for all UK bank customers and operates effectively as an ‘e-wallet’. When there are no external effects in the context of unilateral innovations, the appropriate incentives of the provider to introduce new products and services can be sufficiently strong.

In contrast, collective innovation relates to new products or services where the value is realised only when the parties on both sides of the transaction adopt the innovation. The costs of adopting the innovation may fall on one or both of

the parties. Examples include payment systems offering new mobile payment products (such as Paym).

A key consideration affecting a firm's incentives to engage in collective innovation is network effects, whereby the value that a user derives from access to a payments system depends on the number of other users with access. For example, the value to a bank from joining a scheme that offers direct debits will be high only if there are a number of other banks in the scheme. Most payment systems operate as two- (or multi-) sided platforms—i.e. they bring together different types of customer, such as merchants and consumers—and network effects therefore arise frequently between different groups of payment system users.

Network effects mean that there needs to be a critical mass of providers and/or customers adopting a new service so that those who join the system have other participants to transact with. If the critical mass is large, a significant degree of coordination and collaboration between payers, payees and their service providers is required to successfully implement an innovation. If incentives to coordinate are not sufficiently strong to obtain critical mass, desirable innovations may not be introduced. There are a number of reasons why the degree of coordination may be insufficient. For example, if providers that adopt new scheme rules are competing with each other in the retail market, vigorous competition in the downstream market is unlikely to be conducive to agreement at the scheme level.

The pace of innovation in the context of collective innovation is likely to be determined by the critical number of providers and the slowest participant within that group. Innovations that are viable with relatively few participants are therefore more likely to be implemented than those that require many participants. As such, the case for regulatory intervention is likely to be more relevant for collective innovations where coordination is required between a larger number of stakeholders.

In general, it is difficult to design and impose innovation, and regulators are arguably not best placed to do so. The costs of mandating the wrong types of innovation are high, in particular in the context of collective innovations that may require significant investments. A key question for regulators is therefore how to design mechanisms that facilitate coordination and innovation. Moreover, regulators need to ensure that the rules they set are not too restrictive. For example, in telecoms markets globally, there is a heated debate about the regulatory approach based on the principle of technology neutrality. This approach recognises that the industry is likely to know best which technology is most appropriate, and that there is a significant risk that regulators would mandate a technology that turns out to be inefficient.

Many innovations in the payments sector are due to firms entering the market with a new product (e.g. an innovative value-added product or a new payment method). Often,

those firms require access to elements of existing payment systems or to information on the current accounts of their customers. For example, a number of new infrastructures operate as 'overlays' on top of the underlying clearing and settlement mechanisms, and therefore invariably rely on the functionality of the underlying infrastructure for cards and credit transfers either to execute a payment transaction (in the case of wallet solutions) or to enable their service users to load or unload funds onto or from their payment account (in a 'closed loop' system, such as PayPal).

Regulators could therefore use access regulation to facilitate innovation in the payments market, as discussed next.

## Access

Competition and innovation in the payment systems market can be hindered if owners of essential assets or information have an incentive to prevent other operators (e.g. new entrants) from obtaining access to the assets, particularly if they are competitors at the retail level.

There are several levels at which access concerns can arise (see Figure 2):

- the scheme itself—scheme membership rules are generally set by the scheme and the central bank (e.g. the Bank of England in the UK), based on prudential considerations;<sup>5</sup>
- the central payment infrastructure—access to the infrastructure is granted by the infrastructure owners but is typically based on rules set by the scheme;
- the member payment infrastructure—scheme members without their own back-office infrastructure, and non-members, can connect to the core payment infrastructure via scheme members with direct access;
- the VAP level—third-party providers of VAPs require access to information on the scheme/infrastructure standards and to interface technology in order to offer their products and services.

A common justification for mandating access to a given (network) asset is that the asset itself is an essential input into offering a related service that can be provided competitively by multiple suppliers. However, while mandating access to the essential input may promote competition in the related service, it could also reduce long-term incentives to invest in the essential input. The regulatory approach therefore needs to ensure that access charges are set at a sufficiently high level. Similar regulatory principles are frequently applied by telecoms and other network regulators.

Access to information plays an important role in the context of the provision of certain types of service by third-party

providers. For example, a scheme and its members may not find it in their interest to share relevant information on scheme standards and interface technology with independent VAP providers if their products compete directly with the members' own VAPs. Similarly, some payment methods may require access to information on the availability of funds on customers' current accounts. The European Commission has expressed concerns that current-account providers may not have an incentive to provide this information if it enables third-party providers (e.g. a new scheme) to offer competing products or services. As such, the Commission is currently considering whether to require access to this information as part of its revisions to the Payments Services Directive.<sup>6</sup>

Any regulatory approach to access therefore needs to investigate whether there are significant access restrictions in a given industry, whether there are reasonable justifications for such restrictions (e.g. security and data protection or the recovery of investment costs), and whether facilitating access to information and underlying standards might increase competition and innovation, and ultimately benefit consumers.

## Designing a regulatory framework

In addition to the Payment Services Directive, there have been several prominent interventions in payment systems under competition law.<sup>7</sup> Competition law can deal with restrictive agreements and abuse of dominance, and not necessarily with questions of access and innovation. The Financial Services (Banking Reform) Act 2013 required the Financial Conduct Authority (FCA) to establish a new competition-focused, utility-style regulator for retail payment systems in the UK to 'bring payment systems under formal economic regulation'.<sup>8</sup> The Payments Systems Regulator (PSR) was incorporated as a subsidiary of the FCA in April 2014, and will be fully operational by April 2015. The PSR can learn lessons from utility regulators, in particular in relation to assessing where competition can and cannot work and where access to existing infrastructure may be required (and, if so, how to regulate it). However, its focus is likely to be different: whereas utility regulators focus primarily on price and access regulation (to prevent a utility firm from abusing its monopoly power), the PSR is facing a very different and challenging question of how to create the right incentives and mechanisms to facilitate and encourage innovation. This is likely to raise some interesting issues about the boundaries between 'competition' and 'collaboration'.

<sup>1</sup> According to the OFT, over 40 billion payments (cash and non-cash) took place in the UK in 2012. The total value of those transactions was £9.5 trillion. OFT (2013), 'UK Payment systems. How regulation of UK payment systems could enhance competition and innovation', July.

<sup>2</sup> The European Commission has analysed the value chain in other financial services markets, such as the market for services for trading and post-trading of securities. See, for example, Oxera (2011), 'Monitoring prices, costs and volumes of trading and post-trading services', report prepared for European Commission, DG Internal Market and Services, May.

<sup>3</sup> See [http://www.vodafone.com/content/index/about/about-us/money\\_transfer.html](http://www.vodafone.com/content/index/about/about-us/money_transfer.html).

<sup>4</sup> For example, VocaLink accounts for only between 2% (credit transfers) and 8% (direct debits/standing orders) of the total costs of these transactions to the service user.

<sup>5</sup> Most payment systems in the UK require that their members have a minimum credit rating (among other factors) and a settlement account at the Bank of England.

<sup>6</sup> European Commission (2007), 'Directive on Payment Services (PSD)', 5 December, and (2013), 'Payments legislative package', 24 July.

<sup>7</sup> Of particular note are the interchange fee cases against MasterCard and Visa. In addition to some disagreement in many EU member states, a major Decision was that by the European Commission in 2007, which found that MasterCard's multilateral interchange fees (MIFs) for cross-border transactions restricted competition between banks and inflated the cost of card acceptance by retailers. The General Court upheld the Commission's Decision in 2012. A ruling by the European Court of Justice is expected soon. See European Commission, '34579 MasterCard I'; Judgment of the General Court (Seventh Chamber), case T-111/08, 2012.

<sup>8</sup> HM Treasury (2013), 'Opening up UK payments: response to consultation', October.