Innovations in retail payments: e-payments

By Helen Allen of the Bank's Market Infrastructure Division.(1)

Ways to make retail payments using the internet and mobile phones are proliferating. Some are offering new access routes to existing payment means, others use different means to transfer value, but all attempt to provide greater convenience and choice in payment services. Few, however, have reached critical mass and none has displaced existing payment methods. Nevertheless, the prospect that these new services could be widely used raises some policy questions. For example, central banks are interested in any potential effects on financial stability and, in the longer term, in whether such innovation might have monetary policy implications. For these reasons, central banks monitor the evolution of the market, even though any such impacts may be a long way off. Moreover, it may well be that the system-wide risks will be relatively small even if e-payment usage becomes significant.

Innovative products for making retail payments have proliferated in the past few years, in parallel with the widespread adoption of the internet, e-mail and mobile phones. The new payment offerings based around these channels, along with related technologies such as smart cards, are widely referred to as 'e-payments'.

The types of services take a variety of forms—some are new ways of accessing existing payment arrangements, others offer alternative payment arrangements, but all link in some way to existing payment and banking channels. The first section of this article describes the current range of products. The precise way in which such services will develop is impossible to predict, but the second section of the article highlights some influences on their future direction, for example, the type of services already established in the market and how easily new entrants can establish networks of participants.

The final section of this article considers some policy questions prompted by e-payments, which could become important if such products became widely used. From a financial stability perspective, changes in the risks and usage patterns of existing payment systems (and the consequences for payment system oversight) would be of particular interest to central banks. Any monetary policy implications from changes in payment arrangements would also be assessed by central banks, though there are as yet few signs that there will be significant effects in the foreseeable future.

A tour of e-payment products

The fast-changing nature of this market makes it a moving target to describe, but the main e-payments services can be grouped broadly into those that are mostly based around the internet, those based on mobile phones and those using pre-paid cards.

Internet and payments

Plastic cards on the internet. These, particularly credit cards, are the predominant means of payment for internet shopping in the United Kingdom. Some 90% of online purchases are made by card.(2) At its most basic level, this is the straightforward use of the internet as an access channel for card transactions, similar to making card purchases over the telephone. The cards themselves are not a new product, but are being adapted in significant ways for more secure and convenient use in the internet environment.

Security developments include the introduction of smart cards with user passwords to enable financial

(1) The author would like to thank Mike Bowman, Peter Finlayson and Richard Martin from APACS for helpful comments and making data available, although this article does not necessarily reflect the views of APACS.

(2) Credit cards account for around two thirds of these payments and debit cards for the remainder (source: APACS, market research, 2003). The dominance of credit cards is also true Europe-wide: see 'Electronification of payments in Europe', *ECB Monthly Bulletin*, May 2003, pages 61–72.

institutions to authenticate to merchants the validity of cards used in online payments.(1) And the use of 'e-wallets' can save customers from entering payment card data and address instructions for each transaction. E-wallet providers store these data, enabling the information to be provided (following security authentication) with only a few mouse clicks.

Online **account-based e-payment services** facilitate person-to-person ('P2P') payments and some are used by businesses as a means for customers to pay online.(2) They require users to set up and pre-fund an 'e-payments' account with the service provider, which can then be used to make 'instant' online payments to any other user—see Figure 1. The sender needs only to know the recipient's e-mail address, not their full bank details(3) and recipients of funds must join the payment service to accept the money. There are several UK examples including Moneybookers and NatWest FastPay; worldwide the best known is probably PayPal in the United States—see the box on page 433.

A variation on the theme is where recipients do not need to join the e-payments service. For example, EggPay in the United Kingdom can also send recipients their funds via a transfer to any UK bank account that the recipient specifies. Some services can also operate using a mobile phone, rather than internet/e-mail, as the access channel to the e-payments account.

The examples selected are grouped broadly by access channel—though in practice these, and indeed any method of categorisation, overlap in several ways.

Internet based

- Plastic (ie credit and debit) cards
- Account-based e-payment services
- Other e-mail/online payments

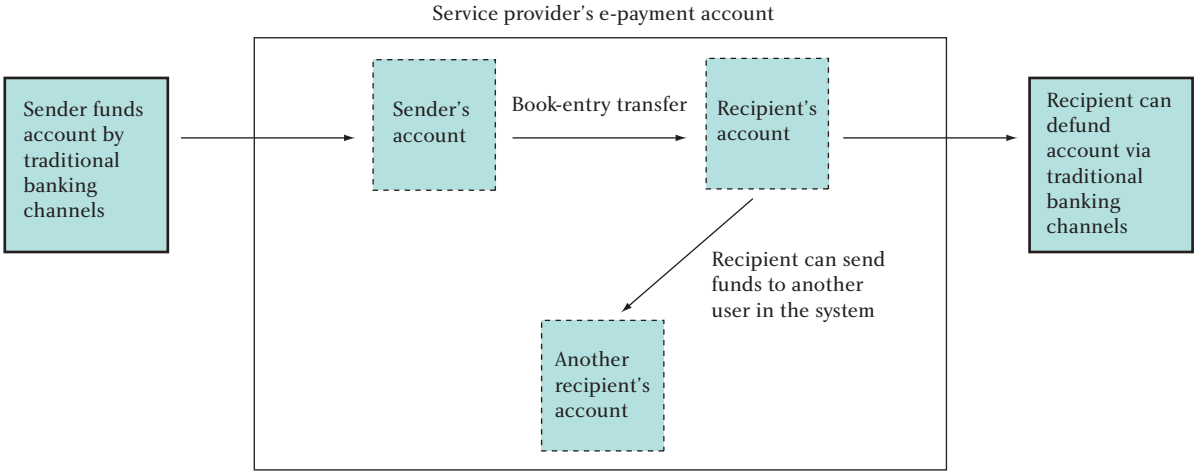
Mobile phone based

- Access channel
- Reverse charging/*ex-post* billing
- Premium-rate services
- Pre-paid airtime

Pre-paid cards/e-purses

There are also similar looking **e-mail/online payment products** but without a separate e-payment account. Instead, an internet service 'overlays' existing banking arrangements to offer online bank account to bank account transfers. Again, the sender needs only to know the recipient's e-mail address to initiate a transfer. This makes it more like an access channel to existing payment arrangements and probably has more in common with online banking (ie involving no fundamental change to underlying banking arrangements). The CertaPay service in Canada, branded Email Money Transfers by its

Figure 1
Account-based e-payment services



Initiation, notification and confirmation of transactions are via e-mails between sender, service provider and recipient. There is no direct communication between sender and recipient.

(1) Smart cards are plastic cards with an embedded microchip for storing information. These are in the process of being rolled out across Europe (and elsewhere), using the internationally agreed EMV standard. In the United Kingdom, the change-over is referred to as 'Chip and PIN'—see www.chipandpin.co.uk.
(2) These services are referred to in several ways, including 'virtual accounts', 'personal online payments' and 'P2P' services. Issues relating to these, especially those operating in the United States, are discussed in Kuttner, K N and McAndrews, J J (2001), 'Personal online payments', *Federal Reserve Bank of New York Economic Policy Review*, December, pages 35–50.
(3) This distinguishes them from many online banking services, where users would need to know the counterparty's bank details before effecting a transfer.

participating banks, is an example of such a service. There is also a parallel with the card-to-card (P2P and cross-border) payment services developed by MasterCard and Visa (MoneySend and Visa Direct respectively). These too are designed to 'overlay' the existing card/bank infrastructure and one (of their several) access routes is online, requiring the sender to supply only the recipient's e-mail address.(1)

Mobile phones and payments

Mobile phones are spawning numerous payment offerings, often loosely grouped under the heading 'm-payments'. Some use the handset as a convenient access mechanism to traditional payment means. Others are integrating characteristics of the mobile phone itself into payments procedures, such as piggy-backing on existing billing of phone calls or spending the mobile phone's pre-paid airtime. And there are attempts to bring arrangements together under the umbrella of single-branded services.(2)

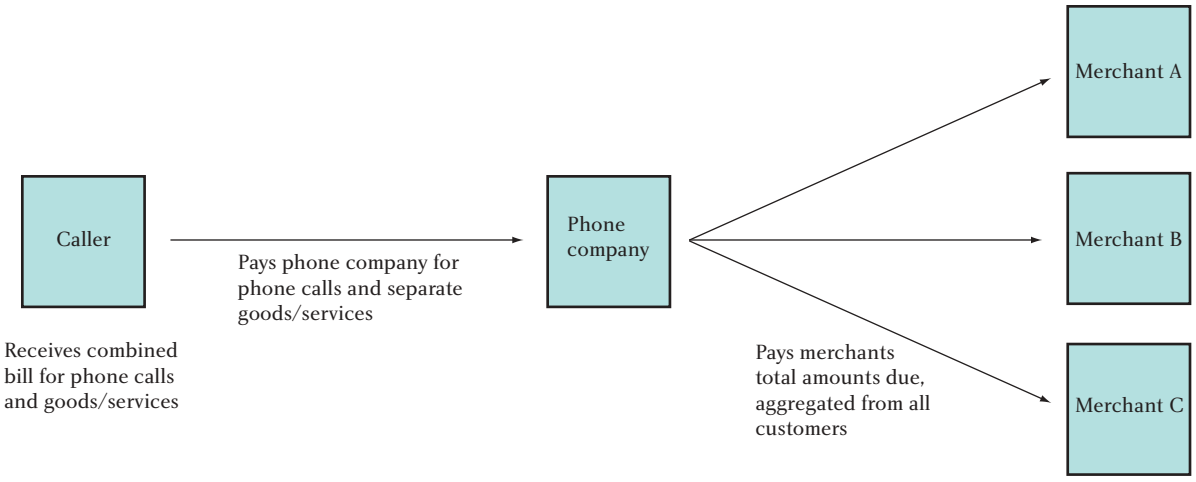
Mobile phones can act as an access channel through which to initiate and authenticate transactions from existing payments means such as bank accounts or payment cards. In the United Kingdom, mobile network operators are currently offering services for users to charge purchases directly to their payment cards that they have pre-registered with the service (similar to the use of e-wallets for online transactions).

Reverse charging, or *ex-post* billing, is also associated with (though not exclusive to) mobile phone purchases. This is where payments for goods/services are placed as additional items on the customer's post-paid phone bill. The bill is then paid in the normal way, say monthly through direct debit or at a bank. The phone company records all payments from each customer to each merchant and sends the merchant a consolidated payment periodically (see Figure 2).

Premium-rate services (PRS) allow purchases to be made by routing the purchasing call through a premium-rate number. For the caller, the cost of the call covers both the call itself and an amount for the goods/services purchased. These payment arrangements seem suited to low-value payments of perhaps up to a few pounds. Typically, the caller's phone company routes such calls to another phone company which then either provides the premium-rate service itself or may link on again to another supplier—see Figure 3. The revenue from the caller is divided between the various parties to the transaction. Though often associated with mobile phones, these services are also available to callers using fixed-line phones. They can be paid for using either pre-paid airtime or *ex-post* billing arrangements.

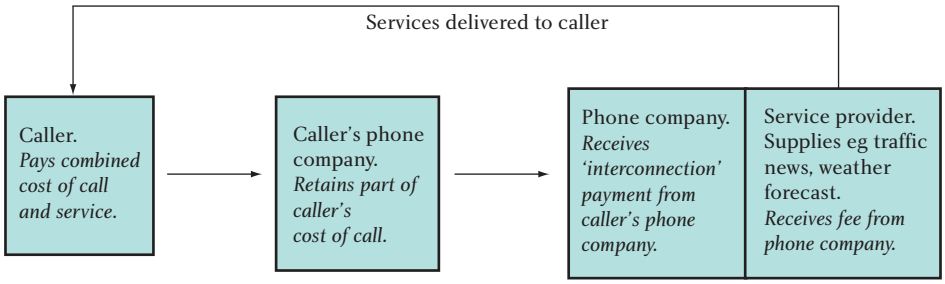
Pre-paid airtime on mobile phones can be used to pay directly for non-telephone items from third parties. Again, this is suited to lower-value purchases and may be suited to users (particularly younger people) without

Figure 2
Reverse charging



(1) There are also other online payment-related services. For example, internet bill payment services let users pay bills online, typically by accepting card payments for a defined list of companies (such as utility companies), while Electronic Bill Presentment and Payment (EBPP) services integrate the presentation and payment of bills on the internet so customers can receive and pay the bills across the same platform.
(2) For example, in the United Kingdom, MobileATM and Simpay plan to offer a range of m-payment arrangements under their respective brands. MobileATM is a joint venture between LINK (which manages the UK ATM network) and a mobile technology provider, while Simpay is an association of mobile network operators.

Figure 3
Premium-rate services



bank accounts or credit cards. The phone company collects the funds from the user to pay for airtime in advance of transactions. When the user makes a purchase, the phone company can retain the part that is its own revenue for the phone call and pays the merchant (possibly periodically) what is due for the goods/services purchased. Purchase of pre-paid airtime is available at some ATMs.

The varied range of mobile payments also includes those directed at micropayments—low-valued payments such as for web content or ring tones. These offer several of the payment options described. For example, Ymogen enables the cumulative payment for premium web content/services, billing daily to the users' credit/debit card or to certain mobile phones by sending reverse charge SMS messages. Micropayments services are also available using internet-based access—a further demonstration of how e-payment 'categories' overlap. An example is BT click&buy which allows registered users to have content purchases from participating online merchants charged directly to their credit/debit card, to a direct debit or BT phone bill each month.

Pre-paid cards/e-purses

The products with the longest history, of over a decade, among e-payment services are pre-paid cards aimed at low-value transactions. At one time these were generally called **e-money**,(1) but this term is now used across the whole area of e-payments. This article refers to these pre-paid products as **e-purses**. Despite early predictions that they would displace notes and coins, they remain niche products often associated with specialist uses such as mass transit systems or university campuses.

The e-purse scheme operator (or its agents) takes conventional money from card users in exchange for a card loaded (or reloaded) with the same amount of value. Retailers accepting the cards in payment for goods or services ultimately receive conventional money from the scheme operator. There are several models through which this can be carried out.(2) Worldwide, there have been a number of attempts to introduce these payment cards.

In the United Kingdom, several e-purse trials took place around the late 1990s, for example of Mondex and Visa Cash e-purses in Swindon and Leeds respectively and the trials on campuses. These projects, however, were mostly discontinued. The UK market, like most others, remains quiet, though sporadic interest continues.

The development of the market for e-payments

The use of e-payment products is patchy. The most active area is paying by plastic cards on the internet. This is estimated to account for some 90% of all online purchases and represents around 3% of all card payments (a similar share to those made over the telephone). Moreover, it is an expanding market; surveys show around 60% of internet users have made online purchases, a three-fold rise in three years.(3)

For the many other e-payment services, however, the picture is less clear. For these, it is not possible to point to any one model as a 'front-runner', and despite niche

(1) 'Network (or software) based e-money' and 'digital coins' are terms sometimes used to describe broadly equivalent services designed for online purchases. For descriptions of some of these products and other e-payments see section 2 of 'E-Payments in Europe—the Eurosystem's perspective', *European Central Bank Issues Paper*, 16 September 2002 (www.ecb.int/events/conf/other/epayments/epayments.pdf). Descriptions are also found in Committee on Payment and Settlement Systems (2001), 'Survey of electronic money developments', Bank for International Settlements, Basel, *CPSS Publications No. 48*, November (www.bis.org/publ/cpss48.htm). The next survey will be published in early 2004.
(2) For more information on the arrangements and issues in this area, see Committee on Payment and Settlement Systems (1996), 'Security of electronic money', Bank for International Settlements, Basel, *CPSS Publications No. 18*, August (www.bis.org/publ/cpss18.htm); 'Report on electronic money', European Central Bank, August 1998 (www.ecb.int/pub/pdf/emoneysecurity200305.pdf); and 'Electronic money security system objectives (EMSSO) report', European Central Bank, May 2003 (www.ecb.int/pub/pdf/emoney.pdf).
(3) Data from APACS for 2003. Online banking has also expanded markedly: APACS survey data suggest some 11 million users in the first half of 2003 (which is 39% of internet users), of which some 2.5 million had only been using the services for less than six months.

examples of user uptake, the wider market for these new services has yet to be realised. The above data suggest that, excluding the direct use of plastic cards, all internet-based e-payments services account for at most 10% of all online purchases, which overall is a fraction of one per cent of all non-cash transactions. The data, however, are very limited—the general impression of usage patterns comes from sources such as surveys, market participants and the trade press.

The many entries and exits from the market reflect the difficulties in establishing new services. Products building on online or mobile channels (themselves only well-established relatively recently) inevitably have had little time to develop trusted services, to open new markets or to displace traditional methods. Moreover, any service not only has to attract end-users but also needs a viable commercial proposition for other participants—be they retailers, financial institutions and/or phone companies.

This highlights the importance of network effects—where the value of the system to each participant rises as others join. These are characteristic of payment systems, and networks of participants may need to be established at several levels (say consumer to consumer, or consumers and retailers) depending on the nature of the service. The difficulties new services face in entering markets with established networks are well documented and illustrated by the experiences of e-purses.(1) These need to attract sufficient end-users carrying the cards, retailers who accept the cards, plus sufficient facilities to load cards—this whole network is required for a product to be viable. Another example is those P2P account-based payment services that require both senders and recipients to join: until a critical mass of end-users is established, the attraction of such a service is limited. However, those e-payment services that build on existing payment arrangements will face fewer network issues. Most obviously, the fact that plastic cards have an existing customer base, widespread merchant acceptance, established business structures along with a well-known product and brand, goes a long way to explaining their significance in e-payments to date.

The varied current pattern of retail payment instrument use across countries is likely to be repeated in the development of e-payments. Whether there is scope to add sufficient value to encourage people to substitute from their existing payment means depends very much on existing payment arrangements. For example, the United Kingdom's direct debit system for regular bill payments is reliable, understood and trusted by personal and business users, which could limit the opportunities for a new product for electronic bill payment. Yet the same new product may find a receptive market in a country where bill payments can be made only laboriously by cheque.

Another illustration is the differences in market opportunities between countries. For example, PayPal in the United States began to develop its network from the niche of providing payment services to internet auction sites (see the box on page 433). That same opportunity would not have existed in countries without significant internet auction use. But different markets may offer other openings and see payment services develop along different paths. For example, many new e-payment services aim at specific market segments, such as low-value transactions, or young people—sectors that in some markets may not be suited to existing payment means such as credit cards or bank transfers.

Any sustained adoption of e-payments also requires the services to have appropriate security. Public perceptions of this can be as important to the market's development as the actual security position.(2) Overall user confidence in payment services is affected not only by technical security measures but also, for example, by the liability arrangements for unauthorised transactions and the public's understanding of them. These are some of the many areas that are the subject of policy attention.

Policy interests in e-payment developments

Many policy issues associated with e-payments (such as security, consumer protection, regulation) are common across financial services and electronic commerce. Responsibilities in these areas can fall to a range of organisations, including regulators and competition

(1) There are comments on network effects in payment systems in section 4 of 'UK payment systems', Office of Fair Trading, May 2003 (www.oft.gov.uk/NR/rdonlyres/e6t2ged5itojvmwq7rsxtkfoas2ydnocmb7pqyxoenpnq4nfimaxkpaazc fravmdy4zawkoryokw3amas25vbtt327f/oft658.pdf). Further discussion and academic references are found in Schmitz, S W (2002), 'The institutional character of electronic money schemes: redeemability and unit of account', in Latzer, M and Schmitz, S W (eds) (2002), *Carl Menger and the evolution of payment systems*, Edward Elgar Publishing.

(2) These issues are considered in 'Study on the security of payment products and systems in the 15 Member States', commissioned by DG Internal Market of the European Commission. This was presented in September 2003 at an EC conference entitled 'Payments & Confidence'. The study and the other conference presentations are available at: www.europa.eu.int/comm/internal_market/payments/conference_en.htm. For a discussion of security and e-payments issues, see Jakubowicz, Z, Hanssens, B and Henriksen, S (2003), 'Is paying on the internet risky? What are the risks related to internet payments?', *ePSO Discussion Starter no. 2*, September, available at www.e-pso.info/epso/index.html.

PayPal in the United States

Probably the best known e-payment offering is PayPal in the United States.(1) It is a non-bank, account-based service. Founded in 1999, it grew out of a niche market—P2P payments between users of internet auction sites. It provided a solution to the problem of payments between individuals who were geographically distant and unknown to each other. Cheques in the post were unsatisfactory, given delays and unknown creditworthiness—and credit cards could not be used directly between individuals. PayPal offered instant confirmation of fund transfer, conveniently using the same medium (the internet) as that used to agree the transaction. It was recently bought by eBay.

Its 'viral' model, requiring payment recipients to join PayPal, worked strongly in its favour. Moreover, it spent money building a network of users—in its early days PayPal paid 'bonus' money into new accounts and similarly rewarded customers who attracted other users. The growth of its business was accompanied by profit-oriented refinements: through pricing carrots and sticks they shifted users' account funding/defunding away from relatively expensive card-based sources and towards cheaper ACH (automated clearing house) transfers. They also charged for a wider range of services.

Most significant is PayPal's deliberate shift away from P2P payments (which it said was not a profitable sector), to centre its business on transactions involving merchants, who all pay fees (unlike personal customers). It now describes its typical customers as small, online merchants wanting to receive card or bank payments over the internet. PayPal says this market is not directly served by card companies as the merchants' transaction volumes are too low to be viable for them. For the merchants it means they can accept card payments without needing a relationship with a merchant-acquiring bank.

(1) See www.paypal.com. PayPal is planning to launch a UK-based service in early 2004. There are also services competing with PayPal.

authorities. This section first discusses some of these policy issues in the specific context of e-payments, then considers which areas might potentially have implications for central banks' financial stability and monetary policy interests in the longer term.

General policy towards e-payments

Given the rapid developments in e-payments, the plethora of initiatives from both the official and private sectors is unsurprising. The areas of standards, security, privacy, regulation and data are receiving particular scrutiny (see Annex 1, 'Initiatives on e-payments'). An underlying question is often that of whether and how to encourage the market. Some particular questions illustrate the policy debates.

- Should policy-makers promote interoperability between e-payment services? Little is seen to date, for example users of account-based e-payment services cannot typically make payments directly to users of other similar services, nor is there any significant interoperability between active e-purse schemes. If there were interoperability, each service would not face the hurdle of establishing its own network independently, and products collectively might be better placed to achieve a critical mass of users. This could be used as an argument for public intervention to promote interoperability. However, the gains of 'imposing' this, especially in a rapidly developing market, may be offset by diminished product differentiation and stifled innovation.

- Should public authorities be involved in the security of payment means? There are obvious commercial incentives for payment providers themselves to ensure appropriate security—the risks of financial losses through fraud and reputational damage to the products. Inadequate security, however, also has market-wide externalities, since problems in just one area could reduce public confidence across the wider payments market. This consideration, often in conjunction with consumer protection responsibilities, leads some authorities to have a direct role in the security requirements of payment services/instruments.

Though there are arguments in favour of intervention to encourage these markets, more significant could be the risk of making the wrong choices. Inappropriate interventions at an early stage could constrain the natural development of these payment products. For this reason, policy-makers encourage co-operation between themselves and market participants and may

limit their role to, for example, facilitating industry co-ordination initiatives.

There are questions over what regulation should apply to e-payment products (or indeed, if any significant regulation should apply to small-scale services). Precisely which services meet the criteria for current regulatory arrangements is not always clear. For example, the definition of e-money used in the relatively recent EC Electronic Money Directive (the basis for the regulation of e-money issuers in the European Union) probably most closely relates to more 'traditional' e-purse type products.(1) In contrast, the online and mobile payment services that have since come to market look rather different and raise new questions for regulators. An example is whether pre-paid airtime on mobile phones should be classed as e-money if it can be used also to buy goods/services from third parties. (See Annex 2, 'E-money and e-payments—the regulatory position in the United Kingdom'.)

If e-payment services became widely used, it would raise the importance of these issues for all policy-makers with interests in the area. For central banks, any implications for payment systems and for monetary policy would be of direct interest; these are discussed next.

E-payments and payment system policy

Central banks' approaches to payment systems are affected by their different institutional remits.(2) Some look in detail at retail payment systems, instruments and their security, and therefore have a close interest in e-payment developments. Others—including the Bank of England—focus mainly on financial stability issues, so they give greater policy and oversight attention to wholesale payment arrangements and those systems that might give rise to system-wide risks.(3) This role, however, includes monitoring payment market developments to anticipate issues that might arise in the future. From this perspective, the study of e-payments suggests two main areas of interest, although analysing them does not necessarily imply the associated risks would be of concern even if the use of new services were to rise significantly.

The first area of interest is where transactions can move outside existing payment systems. Some e-payment models result in transfers taking place across the payment providers' books. Previously these would have occurred across existing payment systems, including card networks, where the forms of risks are understood and to varying degrees overseen. The wider use of e-payments could mean that different institutions (possibly from outside the financial services sector) may come to manage a larger volume and value of such transactions, with a role in aggregating, segregating and transferring obligations. This could raise questions about whether their risk management is appropriate to their new activities.

The second area of interest is where e-payment services interact with existing payment systems, such as through offering access channels to them, or relying on them for funding/defunding. These may change both the risks in and usage of the existing systems:

- Risks to existing payment systems could arise from associations with e-payment services. For example, if operational problems in an e-payment service that passed transactions to an existing payment system were to lead to failed payments, it could reflect badly on the existing system (or indeed, *vice versa*). The reputation of both systems could be damaged and there may be adverse effects on user confidence. These reputational and confidence effects could spread much wider than the original incident.

- Developments in e-payments could change usage of existing payment systems. Their volumes might rise if, say, an e-payments service which settled each transaction through an existing system attracted large numbers of transactions.(4) Higher values/volumes could increase the impact of any operational problems. Alternatively, volumes in

(1) A discussion of some definitional issues is at Kimmo, S and Hanssens, B (2003), 'E-payments: what are they and what makes them different?', *ePSO Discussion Starter no. 1*, May (www.e-pso.info/epso/index.html).
(2) The varied involvements of central banks in retail payments are described and discussed in the report Committee on Payment and Settlement Systems (2003), 'Policy issues for central banks in retail payments', Bank for International Settlements, Basel, *CPSS Publications No. 52*, March (www.bis.org/publ/cpss52.htm).
(3) Oversight of payment systems in the United Kingdom is carried out by the Bank of England. Its main objective is to ensure that systems give sufficient weight to risk reduction and risk management in their design and operation. The intensity of this oversight is proportionate to the assessment of the risks posed to the wider financial system. See 'Oversight of payment systems', Bank of England, November 2000 (www.bankofengland.co.uk/financialstability/paymentsystems/oversight.htm) and the 'Oversight of payment systems' annex to the 'Strengthening financial infrastructure' article of the Bank of England's semi-annual *Financial Stability Review*.
(4) That is, volumes would rise net of substitution effects—if a transaction through such an e-payment service simply substitutes for one that otherwise would have gone directly through the existing payment system, volumes would be unaffected.

existing systems could fall, for example if new services led to more aggregation arrangements (ie several underlying transactions settling by a single payment through an existing system). This might affect the commercial position of an existing system.

Were e-payments to grow significantly, any resulting changes in the distribution of risks might make it appropriate to adjust the form and extent of payment system oversight in this area. E-payments, however, are only one of the strands of developments of payment markets which need to be monitored to assess such effects. From the financial stability perspective, the most important consideration is to avoid any problems in one part of the process being transmitted through the financial system—to other institutions and perhaps even more widely to the users of the systems.

E-payments and monetary policy

The possibility of e-payments having a significant impact in the monetary policy field has featured in debates about the future of money, monetary policy and the financial system. This section highlights some particular reasons why monetary policy makers will monitor the development of electronic payments.

Money and payments have constantly evolved as societies' needs have changed and enabling technology has become available.(1) Recently, many advances based on electronic communication technologies have come into mainstream payments use—such as interbank electronic transfers, payment cards and now e-payments. Against that background, the introduction of devices like the internet and mobile phones into mainstream retail payments can be seen as another addition to existing arrangements. But, like other innovations, they may have monetary effects.

Use of e-payments may affect the frequency of transactions and cause substitution between payment means. This may lead to changes in the relationships between different monetary measures and economic activity. An example would be increasing use of cash substitute products such as e-purses. In this case, since such products do not form part of M0 as currently measured, the velocity of M0 would be likely to increase, altering the relationship between M0 and real economic variables. Hence, to the extent that M0 is used by policy-makers as an indicator of current or future economic activity, information content would be reduced. Of course, other payment developments (such as the widespread use of credit and debit cards) have over time similarly affected the velocity of M0 and other aggregates; the key for monetary policy makers is to be aware of developments and their likely impact on the different aggregates.

Such developments, however, do not affect the ability of the central bank to execute monetary policy since the issuers of these payment means still need ultimately to settle with each other across accounts held at the central bank. It is through their being the monopoly supplier of this facility that central banks have leverage over the value of transactions in the economy and influence on interest rates.(2)

Nevertheless, the effectiveness of central banks' monetary policy were cash to be displaced is a subject of considerable academic debate.(3) In particular, it is useful to consider the theoretical possibility that future sophisticated electronic means could allow final settlement to be made without recourse to a central bank. As explained by King (1999),(4) it is possible to imagine computers being used to agree settlement terms between parties and make the necessary wealth transfers across electronic accounts for all transactions in real time. These electronic systems would match supply and demand at market-clearing prices and there would be no requirement for a central bank in settlement. Central banks might retain a role as regulator of these different electronic systems and as an arbiter of whatever was chosen as the unit of account (acting like 'weights and measures' inspectors). To date, the prospect of such radical developments remains distant, but illustrating the substantial effect of e-payments in that model encourages us to consider the impact of current, much more limited, developments.

Concluding remarks

Even though e-payments represent only a small fraction of all transactions at present, their usage could

(1) See, for example, Carl Menger's classic article 'Money', first published in German in 1892 and translated into English in Latzer, M and Schmitz, S W (eds) (2002), *Carl Menger and the evolution of payment systems*, Edward Elgar Publishing.
(2) For a discussion of this point, see Selgin, G A and White, L A (2002), 'Mengerian perspectives on the future of money', in Latzer, M and Schmitz, S W (eds) (2002), *Carl Menger and the evolution of payment systems*, Edward Elgar Publishing.
(3) For a recent summary of some debates, see Holthausen, C and Monnet, C (2003), 'Money and payments: a modern perspective', *ECB Working Paper no. 245*, July.
(4) King, M (1999), 'Challenges for monetary policy: new and old', paper for the Symposium on 'New challenges for monetary policy' sponsored by the Federal Reserve Bank of Kansas City at Jackson Hole, Wyoming, 26–28 August.

potentially grow quite rapidly. A significant increase in their usage would make more immediate the policy issues highlighted above, although precisely which —if any—would prove significant would depend on the nature of the successful new products. Central banks will therefore continue to follow this changing and innovative area. But the current limited take-up of most of these services highlights the importance of maintaining a sense of proportion in considering policy responses, while acknowledging the possibility that the payments market could change significantly.

Annex 1
Initiatives on e-payments

Official initiatives include:

- **European Central Bank 'E-payments in Europe'.** A conference and public consultation during 2002 Q4 discussed e-payment developments in Europe and raised policy issues. The ECB concluded it could have roles (such as monitoring and encouraging developments) in standards, security and statistical data. This year it relaunched the open forum of the 'e-Payments Systems Observatory' which aims to serve as a source of information and to foster an exchange of views on electronic payments between market participants (see www.e-pso.info).

- **European Commission's consultative document on a 'New legal framework for payments in the internal market'.** Published on 2 December 2003, the paper consults on a wide range of proposals intended to bring the EU closer to being a single European payments area. This includes reviewing the regulatory framework of payment service providers in the context of questions about coverage and consistency raised by the range of new payment services. The consultation runs until 31 January 2004 (see www.europa.eu.int/comm/internal_market/payments/framework/communication_en.htm).

- **European Commission's 'EU blueprint on mobile payments'.** The EC is acting as a facilitator to bring together payment providers and phone companies to promote the deployment of mobile payment methods. Coverage includes standards/interoperability, security, legal matters. A draft report is available at www.mellonrd.com/blueprint: it is expected to be completed around end-2003.

Industry initiatives include:

- The **European Payments Council** is an industry grouping established in 2002 to provide the European payments industry with a single voice on payments issues, including in its discussions with the ECB, European Commission and national central banks. It is developing a vision of e/m-payments, in the context of wider plans to achieve a full single payments area in Europe.

- The **Electronic Money Association (EMA)** is a trade body representing electronic money issuers in the United Kingdom. Founded in 2001, EMA's interests include liaising with regulators and government bodies, drafting industry guidelines and acting as a communication and education forum (see www.electronicmoneyassociation.org).

- For **mobile payments**, industry groupings include the Mobey Forum, MeT (Mobile electronic Transactions), the Mobile Payment Forum, PayCircle and Radicchio.

Annex 2
E-money and e-payments—the regulatory position in the United Kingdom

Regulatory framework: The EC Electronic Money Directives (2000/28 and 2000/46) regulate e-money issuance by so-called '*ELMIs*', electronic money institutions. These are a new category of non deposit taking credit institutions which, once authorised, benefit from a single passport to issue e-money throughout the European Union. Implemented in April 2002, the UK regime is administered by the Financial Services Authority (FSA). It places financial soundness requirements on ELMIs, including on the investment of their e-money float. Very small issuers of e-money can apply to be exempted from the requirements contained in the regulations although this results in the loss of the EU passport. *Banks* (ie traditional deposit-taking credit institutions) continue to be able to issue e-money under their existing supervisory regimes (as a passportable activity), which in the United Kingdom requires an explicit e-money permission from the FSA.

The first UK ELMI authorisations, of Moneybookers, then Splash Plastic, were made early this year. Several small schemes have been formally exempted from the regulatory requirements (13 at end-November 2003).

Regulatory debate: The regulatory definition of e-money now affects the wider field of e-payments. Essentially, services are captured within the EU regulatory definition where they are pre-paid; used to buy goods/services from a third party; and stored on an electronic device. However, definitions in the Electronic Money Directive were designed around 'traditional e-money' and are silent or ambiguous on the status of several products that have recently been launched.

There are inevitably difficulties in interpretation. For example, the view that certain account-based systems are e-money is not universally accepted. However, one practical motivation for treating them as e-money is that these services may otherwise end up unregulated. The table below summarises guidance from the FSA.

E-payments method	**Regulated as e-money in United Kingdom?**
Account-based e-payments services (pre-paid)	Probably, if it can be spent with a merchant; probably not if only for P2P money transmission
Mobile phone payments: access to existing payment means	No
Mobile phone payments: premium-rate services (PRS)	No, unless it involves the acceptance by third parties of pre-paid airtime as a means of payment
Mobile phone payments: pre-paid airtime	See mobile phone payments PRS above
Mobile phone payments: post-paid (eg *ex-post* billing)	No
Pre-paid cards/network tokens ('traditional e-money', e-purses)	Yes
FSA guidance is evolving. Judgments have to be made: for example products should 'look' like e-money and not like deposits—eg if users can draw directly on the funds by a traditional channel like cheques, it is unlikely to be e-money. See FSA Handbook of rules and guidance, AUTH App 3, *Guidance on the scope of the regulated activity of issuing e-money*.	

Even where there are definitions of what is and is not e-money, the implementation of regulation may not be straightforward. One current example is pre-paid airtime on mobile phones, where there is debate about how to segregate funds used to make third-party purchases (ie e-money) from funds used for normal mobile phone charges.

Within the European Union there remains an active debate over regulatory approaches (see Annex 1 'Initiatives on e-payments'). The Electronic Money Directive itself is due for review by 2005.

Further details:
The regulation of electronic money issuers, CP117 (12/01) and feedback (4/02), FSA (www.fsa.gov.uk/pubs/cp/117/index.html).
Electronic money: perimeter guidance, CP172 (02/03), FSA (www.fsa.gov.uk/pubs/cp/172/index.html).
The implementation of the electronic money directive (ConDoc of 10/01 and follow-up), HMT (www.hm-treasury.gov.uk/documents/financial_services/regulating_financial_services/fin_rsf_emoney.cfm).