The role of central banks in payment systems oversight

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Payment systems are essential to the functioning of monetary economies. This article explains the Bank's role in overseeing UK payment systems to ensure their robustness, including the role of the Bank's recently published first Oversight Report. *It also sets out some future priorities for payment systems oversight in the light of international consolidation and technological innovation.*

The rationale for payment systems oversight

What is a payment system?

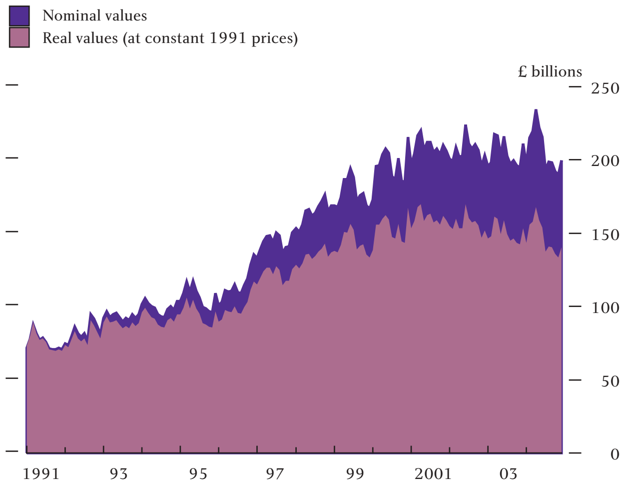
A payment is a transfer of value. A payment system can then be defined as any organised arrangement for transferring value between its participants. So defined, it is clear that payment systems are fundamental to the functioning of all economies. If transactions are the lifeblood of market economies, then payment systems are the circulation system for these transactions.

This circulation system is as vast as it is important. In 2003, the value passing through UK payment systems was around £130 trillion, about 120 times UK annual gross domestic product (GDP).(1) Or, put differently, an amount equivalent to almost 50% of GDP flows through UK payment systems on an average business day. Chart 1 plots the nominal and real (inflation-adjusted) daily value of payments passing through the UK high-value payment system (CHAPS Sterling) since 1991.

The size of these payment flows reflects the variety of transactions which they support, for goods and services as well as financial assets. Some of these transactions involve high-value transfers, typically between financial institutions. These are vital for wholesale financial market activity. For example, they may reflect transfers of funds between banks in response to lending between them, or their customers. Or they may reflect settlement of transactions involving foreign exchange, equities, bonds, money market instruments and other financial assets.

A separate set of transactions, greater in number but typically smaller in value, reflects transfers between individuals and/or companies. These too are vital for the functioning of the economy. For example, they include the payment and receipt of wages, salaries and government benefits, Direct Debits, cheques and debit and credit card payments. If any of these circulation systems failed, the functioning of large and important parts of the economy would be affected.

Chart 1
Average daily value of payments processed in CHAPS Sterling



Sources: APACS and ONS.

What is oversight?

Why might such systems fail — or why might the circulation system stop? A payment system is, in essence, a network. All networks are susceptible to two distinct types of risk. One is the risk that the failure of one agent spills over to other agents in the network, potentially resulting in gridlock in that system. The large interlocking exposures which arise naturally

(1) These figures are based on the value of flows through CHAPS (Sterling and Euro), BACS, the Cheque and Credit Clearings (C&CC), Visa, MasterCard, LINK and the embedded payment arrangements supporting CREST and LCH.Clearnet Ltd.

between participants mean that this risk is often a significant one for payment systems.

The second potential source of risk in a network arises from the dependence of all the network participants on a single supplier. Again, this risk has a particular resonance in a payment system context. Often, payment networks are highly dependent on an agent supplying the infrastructure for payment processing or the exchange of payment information. In both cases, the risks facing the network are systemic — the aggregate risk facing the network is greater than the sum of the risks of each participant were they to operate in isolation.

Individual participants may have neither the ability nor the incentive to mitigate fully these systemic risks. Or, put differently, without outside intervention, payment system participants will tend to underinvest in systemic risk mitigation. Systemic risk in payment systems has, in effect, the characteristics of a 'public bad': it is in no one individual's interest to mitigate systemic risk, but it is in everyone's collective interest that it is mitigated. In these circumstances, there is a clear rationale for some third party to provide directly, or secure indirectly, the public good of systemic stability in payment systems.

This is where public policy comes into the picture. One possible means of seeking to secure the public good of systemic stability of payment systems is for the public sector to build and operate these systems itself. Historically, this has been the case in a number of countries, with the central bank owning and/or operating at least the high-value payment system.

An alternative approach is for payment services to be provided by the private sector, but with a public authority ensuring systemic risk objectives are met through regulation — or oversight — of the system and/or its participants. This is the direction a number of countries have taken in the recent past. It is this second approach which provides the overarching rationale for payment system oversight from an economic welfare perspective.

What is the role of central banks?

In practice, the role of payment systems overseer has been assigned to central banks in many countries. In part, this reflects the fact that there is a natural symbiosis between central banks and payment systems. The liabilities of the central bank ('central bank money') are the apex of the payment system as, being risk free, they represent the ultimate means of discharging obligations between parties. Notes and coin can play this role directly in respect of the general public, while central bank settlement accounts play this role in respect of the banking community. The central bank becomes the *settlement agent*, and its liabilities the *settlement asset*, for the economy.

In the United Kingdom, the Bank of England's liabilities first became a settlement asset in the 18th century in respect of notes, while the Bank's role as settlement agent emerged in the mid-19th century with the advent of settlement accounts for the banking sector. This settlement agent role has continued ever since. Out of this role emerged, with time, a concern with what are today acknowledged as the core functions of central banks — monetary stability and financial stability.

So payment systems are the foundation on which central banks' core functions are built. They are also the bridge between them, for a breakdown of the payment system would inevitably disrupt both monetary and financial stability. In continuing to meet its core objectives, therefore, the Bank has a key role to play in overseeing these systems to ensure their robustness.

This role and the Bank's responsibilities in respect of payment systems were formalised in the Memorandum of Understanding (MoU) with HM Treasury and the Financial Services Authority (FSA) agreed in 1997. For many other central banks, responsibilities for oversight of payment systems are defined in statute. Accompanying these responsibilities are, in some cases, statutory powers of certain kinds — for example, the power to require information or set rules for the system. The UK regime is to some extent unusual as neither responsibilities nor powers for payment systems oversight are defined in statute.(1)

Payment systems oversight in practice(2)

The objectives of payment systems oversight

The main objective of oversight is to assess and, if necessary, mitigate systemic risk in payment systems. At

(1) See Table 1 from the Bank of England's recently published *Payment Systems Oversight Report 2004*, which is discussed below.

(2) A fuller account is given in Bank of England (2000), *Oversight of Payment Systems*, available at www.bankofengland.co.uk/fsr/ops.pdf.

the same time, efficiency considerations need also to be weighed to some degree. For example, it would be counter-productive to create a risk-proof payment system which was so expensive no one participated in it.

Table A provides a summary of the systems the Bank currently oversees and describes some of their key characteristics. The intensity of the Bank's oversight is broadly proportional to the systemic importance of a payment system. Several factors are weighed in gauging systemic importance, including the values and volumes processed by the system, the design of the system from a risk perspective and the availability of substitute payments media should the system fail (Table A).

The Bank focuses most attention on 'wholesale' payment systems. For example, it oversees CHAPS Sterling and CHAPS Euro, the United Kingdom's large-value interbank payment systems, and the embedded payment arrangements supporting CREST, the settlement system for many UK-issued securities. The Bank's oversight also covers the embedded arrangements for transfer of funds between LCH.Clearnet Ltd — the United Kingdom's central counterparty for certain financial and commodity market transactions — and its members.

Of the UK 'retail' payment systems, the Bank focuses on BACS (which processes Direct Debits, Direct Credits and standing orders) and the Cheque and Credit Clearings (C&CC). While the values processed by these systems are far less than for the wholesale systems, their numbers of transactions are very large and the failure of these systems would in consequence cause widespread disruption to the economy.(1)

In addition, the Bank has oversight relationships with a number of core infrastructure suppliers to the payment schemes — in particular, SWIFT, which provides messaging services supporting CHAPS, CREST and many other market infrastructures; Voca, which operates the infrastructure that supports BACS payments; and also the Bank's own Banking Services area, which operates the RTGS infrastructure which is at the heart of CHAPS and CREST.

The Bank's oversight responsibilities are discharged within its Financial Stability area. There is a clear organisational separation between staff responsible for oversight and those responsible for the operation of the CHAPS system. This separation is intended to avoid conflicts of interest and ensure that the Bank's oversight activities are independent.

Assessing payment systems

The foundation for the Bank's oversight is an analysis of risks in UK payment systems. It assesses these risks against the internationally recognised benchmark of the *Core Principles for Systemically Important Payment Systems*.(2) These Core Principles provide a set of minimum standards for payment systems, covering legal risks (Core Principle I), financial risks (Core Principles II to VI) and operational risks (Core Principle VII), as well as efficiency (Core Principle VIII), access criteria (Core Principle IX) and governance (Core Principle X).

The Bank may not seek full compliance with all of the Core Principles for a particular system. Rather, the expected degree of compliance is broadly proportional to the systemic importance of the system. For the most systemically important systems, the Bank may seek compliance with a more specific or higher standard than the Core Principles.

Earlier this year, the Bank published its assessment of the main UK payment systems against the Core Principles in its first *Payment Systems Oversight Report*.(3) This *Report* aims to promote transparency and accountability about the Bank's role in payment systems oversight — indeed, it aims to extend international best practice in this area. This is important to other public policy authorities in the United Kingdom (in particular HM Treasury and the FSA), to the payment system operators themselves and, ultimately, to the public at large.

The Bank's *Oversight Report* sets out those areas where the Bank believes there are systemic risks in payment systems which may warrant some further mitigating action. One example is the work to introduce a *Liquidity Funding and Collateralisation Agreement* in BACS and the C&CC, to facilitate settlement in the event of one of these systems' participants failing to meet its obligations. A second example is work to reduce the

(1) LINK (the ATM network operator) and the debit and credit card systems operated by Visa Europe, MasterCard Europe and S2 Card Services (which manages the Maestro, formerly Switch, and Solo debit card schemes) are also overseen by the Bank.
(2) The full text of the Core Principles and guidance on their implementation are available on the BIS website (CPSS (2001), *Core Principles for Systemically Important Payment Systems*, available at www.bis.org/publ/cpss43.htm).
(3) Available at www.bankofengland.co.uk/financialstability/paymentsystems/oversight/psor2004.pdf.

Table A
Volumes, values and main payment types (daily averages, 2004)[a]

	Volume	Value (£ millions)[b]	Important payment types	Most likely short-term substitutes
Payment systems				
CHAPS			● Settlement of financial market transactions ● House purchases ● Other time-critical payments ● CLS pay-ins and pay-outs arrangements for some other payments	● CHAPS Sterling bypass Mode ● Manual procedures for making a small number of payments ● Possible use of correspondent banking
Sterling	111,502	206,093		
Euro	25,750	153,493		
BACS	18,120,354	11,352	● Salary and benefit payments ● Bill payments by Direct Debit	● Perhaps limited scope for switching to other instruments in the short term — eg cheques or cash
C&CC[c]	8,234,419	5,046	● Payments for goods and services by consumers and businesses ● Bill payments and small financial transactions (eg payments into savings accounts) ● Person to person payments	● BACS ● Card networks ● Cash
Visa (credit and debit cards)[d]	14,909,000	806	● Payments for goods and services by consumers and businesses ● Cash	● Cheques ● Other card networks
MasterCard[e] **(credit and debit cards)**[d]	13,743,000	685	● Payments for goods and services by consumers and businesses ● Cash	● Cheques ● Other card networks
LINK	6,126,030	201	● Withdrawal of cash using an ATM not operated by the customer's own bank	● Own bank's ATMs ● Other cash withdrawal channels
Embedded payment arrangements				
CREST[f] (embedded payment arrangements)			● Settlement of gilts, equities and money market instruments (including in respect of OMOs and repo market transactions more generally)	● Increased free-of-payment transfers could be accommodated within CREST but with increased principal risk
Sterling		267,497		
US dollar		731		
Euro		1,222		
Total CREST	252,652	269,450		
LCH.Clearnet (PPS)[g]			● Settlement in respect of cash margin payments ● Payments for commodity deliveries ● Cash settlements ● Default fund contributions	● If disruption does not prevent calculation of settlement obligations, contingency payment procedures may be invoked ● Contingency algorithms can be used to calculate obligations if usual mechanisms are unavailable
Sterling	182	401		
US dollar	155	670		
Euro	126	506		
Other	244	87		
Total LCH	707	1,664		
Foreign exchange settlement system				
CLS				
All currencies	62,000	395,000	● Settlement of foreign exchange trades	● Correspondent banking arrangements in the relevant countries but with increased principal risk
Sterling[h]	10,000	92,000		

Sources: APACS, Bank of England, CLS Bank International, CRESTCo, LCH.Clearnet Ltd, LINK Interchange Network Ltd.

(a) Except where indicated.
(b) US dollar, euro and 'other' figures are shown as sterling equivalent.
(c) Volumes include items drawn on other branches of the same bank. Values only include those drawn on other banks.
(d) Data for 2003 are shown.
(e) Includes UK Maestro and Solo transactions.
(f) Value figures refer to cash movements within CREST (and will therefore include the value of transactions settled between CREST members who use the same settlement bank). The comparable volumes figure is only available at an aggregate level.
(g) Figures for LCH.Clearnet Ltd refer to the sum of all (net) payments between LCH.Clearnet Ltd and its members through the PPS. Volume figures are for August 2004.
(h) Trades in which one leg is denominated in sterling.

amount of 'tiering' in the UK high-value (CHAPS and CREST) payment systems, by encouraging wider membership of these systems. And a third example is the work of the Bank to become LCH.Clearnet Ltd's 'concentration bank' — in effect, settlement agent — for sterling and euro payments, thereby eliminating the risk of the financial failure of the settlement agent.

While the Bank aims to identify risks in payment systems and propose remedial action, it cannot enact this remedial action because of the absence of statutory powers over payment systems or their participants. Under the *Financial Markets and Insolvency (Settlement Finality) Regulations* (1999),[1] the Bank does have the statutory power to 'designate' UK payment systems. Such designation protects settlement in these systems from legal challenge should a participant become subject to insolvency proceedings.[2] But payment systems do not require designation in order to operate and the Bank cannot oblige payment systems to seek it. So the Bank's powers under these regulations do not amount to statutory oversight authority.

Co-operation with other public authorities

In promoting safe and efficient payment systems, the Bank co-operates with a number of other public authorities, both in the United Kingdom and internationally.

Domestically, the embedded sterling payment arrangement supporting CREST settles a higher aggregate value of payments than any other UK payment system, while the smooth functioning of LCH.Clearnet Ltd's Protected Payments System (PPS) helps underpin the United Kingdom's key central counterparty. For that reason, oversight of these embedded payment arrangements is an important part of the Bank's oversight responsibilities.[3] The Bank's oversight of the payment arrangements for CREST and LCH.Clearnet Ltd must, however, dovetail with the work of the FSA, which is responsible for ensuring that these firms comply with the recognition requirements laid down under the *Financial Services and Markets Act* (2000).

The Bank also works closely with the Office of Fair Trading (OFT), which chairs a Payment Systems Task Force comprising payment system operators, trade associations and consumer and business groups.[4] The Task Force offers an opportunity to improve the efficiency of the main UK payment systems — for example, by looking at the governance, level of innovation and criteria for access to these systems. The Bank is participating in the Task Force as an observer.

As a growing proportion of the United Kingdom's systemically important infrastructure is located in, operated or managed from foreign countries, the Bank also co-operates with a number of overseas central banks and regulators. Recently, these co-operative oversight arrangements have been extended to cover Euroclear, which owns the UK securities settlement system CREST; LCH.Clearnet Group, of which the United Kingdom's central counterparty is part; and SWIFT, which provides messaging services to, among others, CHAPS and CREST. To reinforce the robustness of these arrangements, over the past year MoUs have been agreed among the authorities involved in the oversight of Euroclear group, LCH.Clearnet and SWIFT. The Bank is also involved in the co-operative oversight of CHAPS Euro (together with others central banks which are part of TARGET (the 'Trans-European Automated Real-Time Gross Express Transfer System')); and the Continuous Linked Settlement (CLS) system, which connects RTGS (or equivalent) systems in 15 countries.

Future priorities for payment systems oversight

The nature and scale of risks affecting UK payment systems is changing. The payments agenda over the past decade or so has focused principally on mitigating the credit and liquidity risks which arise from the failure of a single system participant. This is reflected in initiatives to introduce in payment and settlement systems Real-Time Gross Settlement, Delivery versus Payment and/or Payment versus Payment mechanisms, which help ameliorate such risks.

There is further to go in reducing these settlement-related risks in UK payment systems. For example, interbank settlement risks can still arise for banks which are not members of CHAPS; there are

(1) Which implemented the EU *Settlement Finality Directive* (1998) in the United Kingdom.
(2) The Bank designated CHAPS Sterling and CHAPS Euro in May 2000 and CLS in August 2002. The Bank also advised the FSA on the designation of CREST in August 2001 and LCH.Clearnet Ltd in July 2003.
(3) It also contributes to fulfilling the Bank's responsibility to take an overview of the stability of the UK financial system as a whole.
(4) See www.oft.gov.uk/Business/Payment+systems+task+force/default.htm.

residual settlement risks in BACS and the Cheque and Credit Clearing which are not RTGS systems; and settlement arrangements for US dollar transactions in CREST are not as robust as those for sterling and euro transactions. The Bank is seeking to address these risks through its oversight activities. But thereafter this settlement risk-related agenda may be nearing completion.

Looking ahead, the greater risk challenges to UK payment systems may come from key operational dependencies on technology platforms or messaging services which may support multiple payment systems or financial markets, sometimes in many countries. The prime movers behind this shift in risks are the increasing consolidation, international integration and technical sophistication of the key systems.

For example, operational risks to infrastructures have become more acute over recent years as a result of the increased complexity of payments technology and some new interlinkages between different infrastructures. Standards for operational risk management have evolved rapidly over recent years, especially for financial institutions. So too have standards for business continuity planning to guard against single points of failure. UK payment systems need to be assessed against these evolving best practices standards and, if necessary, further action prioritised.

A second area where best practice standards have evolved rapidly over recent years is corporate governance. At present, many market infrastructures are mutually owned and governed. It is questionable whether such an ownership structure adequately protects the public interest, given the widespread consequences for the general public of the failure of some key infrastructures. Independent or public-interest representation on the board of payment systems might plug that gap.

A third area of further work is international co-operative oversight arrangements, given the large and growing share of UK infrastructure which is owned or managed overseas. A patchwork of MoUs has been drawn up with overseers in other countries. To date, however, the practical implementation of these co-operative oversight arrangements has yet to be fully tested.

The Bank needs to ensure these changing risks are adequately monitored and quantified. To that end, it intends to do further work to establish a risk-based framework for its oversight activities, to help determine where oversight resources should be directed. It also intends to host an international conference in May of this year on 'The Future of Payments' at which these changing risk dynamics can be assessed. The Bank's next annual *Oversight Report* will discuss progress on both fronts.