



Oversight of Payment Systems

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Oversight of Payment Systems

Introduction

1 Payment systems are a vital part of the economic and financial infrastructure. Their efficient functioning, allowing transactions to be completed safely and on time, makes a key contribution to overall economic performance. But payment systems can also involve significant exposures and risks for members, and can be a channel for the transmission of disturbances from one part of the economy or financial system to another. This “systemic risk” is an important reason for the close interest which central banks have always taken in the design and operation of payment systems.¹

2 The Bank’s general responsibilities in this area were set out most recently in the Memorandum of Understanding agreed in October 1997 between HM Treasury, the Bank and the Financial Services Authority (FSA). The role is recognised in the statutory information gateway which allows the FSA to disclose supervisory information to enable the Bank to discharge its functions as a monetary authority or as overseer of payment systems. More recently, following the implementation in the United Kingdom in December 1999 of the EU’s Settlement Finality Directive, the Bank has become the designating authority for payment systems. In the light of these developments, and of changes in the payments environment more generally, the Bank believes it would be helpful to explain publicly and more fully the nature of its role in this area. That is the purpose of this paper. The Bank envisages that it will give an account of the way in which it has carried out its role each year at the time of its Annual Report.

3 The Bank’s oversight of payment systems is an integral part of its wider responsibilities for monetary and financial stability. The focus of the Bank’s oversight work is to identify potential risks posed by the design and operation of payment systems and to take steps to eliminate or control them. One such step is to provide the Bank’s own sterling liabilities as a risk-free settlement asset.

4 This paper is organised as follows. Paragraphs 5-17 give some background on payment systems in the United Kingdom and the risks involved; paragraphs 18-22 set out the Bank’s interests in payment systems and the objectives of its oversight; paragraphs 23-36 summarise the oversight role in practice; paragraphs 37-38 discuss co-operation with other UK authorities; paragraphs 39-41 consider the international perspective and paragraph 42 sets out how the Bank proposes to report on its work in this area.

¹: For example, in the 1989 Ernest Sykes Memorial Lecture, the then Governor of the Bank of England, Robin Leigh-Pemberton, set out a number of broad principles and objectives for the development of payment systems, which led on to the introduction in the United Kingdom of Real-Time Gross Settlement.

Background

Payment systems

5 A payment system is an arrangement which allows the users to transfer “money”. What constitutes money has long been a central question of monetary theory; its use and definition has varied over time and from country to country. In practice, in most developed countries at present, “money” is regarded as cash (ie notes and coins issued by the central bank or government) and claims against credit institutions in the form of deposits. In the end, however, what is acceptable as “money” is a matter of behaviour and the boundary could move.

6 One classic function of money is as a medium of exchange. The use of bank deposits to make payments has become increasingly important in developed countries. To make a payment the payer must issue an instruction, typically to the bank where the “money” to be transferred is held. The instruction may be in the form of a paper-based instrument, eg a cheque, or an electronic instruction, eg using a plastic card.

7 At the core of such payment activities are the arrangements that facilitate fund transfers between the members (those intermediaries which connect directly to the system or to each other). It is these arrangements which constitute a ‘payment system’. Payment systems therefore consist of the networks which link members, the switches for routing messages, and rules and procedures for the use of this infrastructure. More specifically, a payment system requires:

- agreed technical standards for, and methods of transmitting, payment messages between members (ie agreement on the infrastructure to be used);
- an agreed means of settling claims amongst members, normally a ‘settlement asset’, sometimes central bank money; and
- a set of common operating procedures and rules (on participation, charging, etc).

Payment systems are essential to the provision of payment services to end-users. But the end-user’s relationship is usually with a payment system member rather than with the payment system itself.

8 The United Kingdom has a range of payment systems. Their relative sizes are shown in the box opposite. In addition, a large number of transactions, mostly for low values, are settled in cash.

Major UK payment systems

Volumes and values (daily averages, 1999)

<i>Payment systems</i>	Volume (ooos of transactions)	Value (£mn)
CHAPS Sterling	79	177,000
CHAPS Euro	6	49,000
BACS	12,300	7,000
Cheque and Credit Clearing	8,300	5,700
Debit Cards	13,800	570
Visa Credit and Charge	3,400	190
MasterCard/Europay	1,900	110
LINK	2,900	100
<i>Embedded payment systems</i>		
Gilts	8	133,000
Equities	170	38,000
Money market instruments	1	9,300

Sources: APACS, CREST, LINK

CHAPS is the United Kingdom's main high-value payment system, in sterling and euro. It is probably most visible to the general public through its use in making same-day payments for house purchases.

BACS is an automated clearing house providing predominantly retail payment services that include direct debit, standing order and direct credit (eg salary payments).

The **Cheque and Credit Clearing** enables instructions given in paper form, by cheque or bank giro credit, to be exchanged between banks and settled.

Visa, MasterCard/Europay and **Switch** are the main providers of credit and debit card systems in the United Kingdom. Other smaller systems not included in the table are the credit and charge card systems of American Express and Diners Club.

LINK provides a mechanism connecting the automated teller machines (cashpoints) of its members.

A further category of payment systems are those which are 'embedded' within a settlement system. The main examples in the United Kingdom relate to **CREST**, the settlement system which handles settlement of UK equities, corporate bonds, gilts and money market instruments. Taken together, the payments systems embedded in CREST settle a greater value of payments each day than CHAPS Sterling.

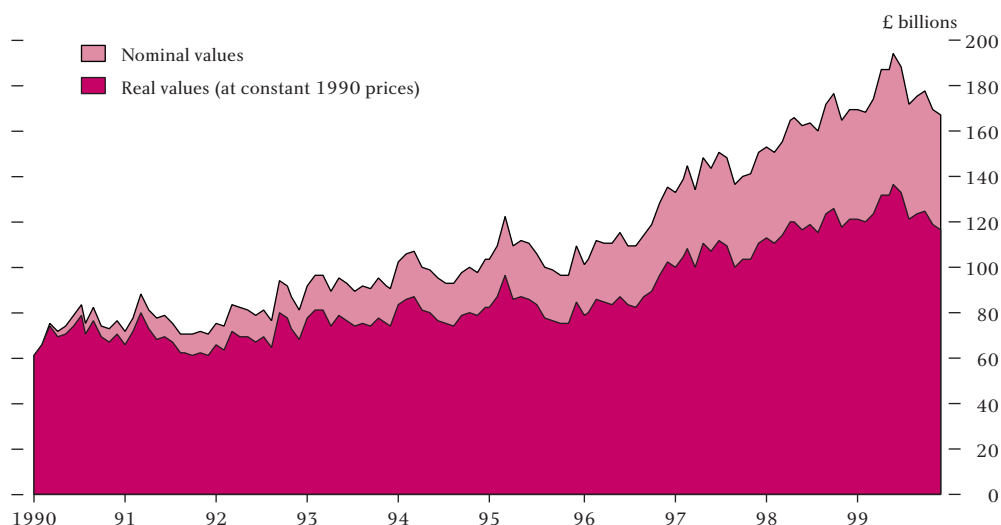
Why payment systems are important

9 Safe and efficient payment systems are essential to the working of financial markets and the economy more generally.

- Payment systems allow safe and timely completion of transactions. Companies use them when they buy or sell goods and services; individuals rely on them to receive salaries and for retail purchases; and Government depends on them to receive taxes and pay benefits.
- Payment systems allow the customers of one bank to make payments to the customers of other banks. These interconnections mean that, in choosing a bank with which to hold their money balances, users can focus on the credit standing of the bank, the cost and quality of the services it offers and the terms of access. They need not worry about whether the people and institutions from whom they receive or to whom they make payments use the same bank.
- Efficient payment systems are vital to the functioning of financial markets. They are used to settle the money side of transactions in money market instruments, bonds, equities, derivatives, foreign exchange and so on. Financial market participants rely on the timely receipt of funds by their banks so that, for example, they can settle subsequent, linked transactions. Central banks use payment systems in their monetary policy operations.

10 The volume and value of payments through UK payments systems has increased considerably in recent years. In 1999, the value was over £100 trillion, more than one hundred times UK Gross Domestic Product. Looked at another way, an amount equivalent to about half of GDP flows through UK payment systems every business day. The chart below shows a tripling during the 1990s in the nominal value, and a doubling in the real value, of payments through CHAPS Sterling, the UK's main high-value payment system.

Values passing through CHAPS Sterling (average daily values)



Sources: ONS and Association for Payment Clearing Services.

Payment systems and public policy

11 Payment systems give rise to public policy issues in three main areas.

12 The **first** relates to the structure of payments systems, their relationship with their members and the implications for the stability of the financial system as a whole. This area, and the Bank's interest in it, is described in greater detail in the next section. A **second** area is a concern for the efficiency and effectiveness of the UK's financial sector both domestically, in serving the needs of the UK economy, and internationally, in terms of the attractions of the UK as a place to do financial business. Working with market participants, the Bank aims to promote improvements in the UK payment and settlement infrastructure for the benefit of members and end-users. The Bank generally seeks to support market-led development but may, where necessary, take a more active part in catalysing market initiatives or assume an operational role. Examples include the Bank's part in moving the CHAPS Sterling system to Real-Time Gross Settlement and in developing CHAPS Euro; and the Bank's leadership of the project which established the CREST equity settlement system, the Central Gilts Office and the Central Moneymarkets Office (the last two are now part of CREST). The **third** area is competition policy, where, as with other significant components of the economic infrastructure, there is a public policy interest in ensuring that a competitive environment exists and that any competitive abuses are curbed. Competition issues are the primary responsibility of the competition authorities, not the Bank. In August 2000 the Government, in its response to Don Cruickshank's report on '*Competition in UK Banking*' (the Cruickshank Report), confirmed its intention to introduce legislation to foster competition in the payments business and to consult on specific proposals. The Bank will continue to co-operate fully with the relevant competition authorities.

Payment systems and financial stability

13 Payment systems can expose their members to financial risks. If members (explicitly or implicitly) give their customers credit for incoming payments before final settlement has occurred, they incur credit exposures to the other members of the system. And if the incoming payment arrives late, they are exposed to liquidity risk because of the delay.

14 Payment systems may transmit disturbances because problems in one member are likely to have direct and rapid effects on other members. The risk of such a domino-like spread of financial problems, extending perhaps beyond the system itself to users, is an example of **systemic risk**. Moreover, payment systems may themselves be a source of systemic risk as an operational failure or malfunction could lead to unexpected financial exposures for members.

15 Systemic risk is likely to be significant only in relation to payment systems transferring amounts which are large in relation to the balance sheets and capital resources of at least some of the members; in practice, this usually means systems used to settle wholesale financial market transactions in money, foreign exchange and securities. These transactions also tend to have time-critical settlement deadlines because they typically form part of a chain of transactions.

16 Even if the amounts transferred through a payment system are too small to give rise to systemic risk in the sense described above, the operational failure or malfunction of a system could still cause widespread disruption, especially if there is no ready alternative means of making payments. The economics of payment systems mean that there will often be a limited choice of systems for making particular types of payment, giving members little scope to manage any risk by choosing safer systems or diversifying across multiple systems. Markets have not typically remained divided amongst several, unconnected, payment systems. In these circumstances, the failure of a system used extensively, for example, to make salary payments, could leave large numbers of individuals with unexpected overdrafts and/or lack of liquid funds. This **system-wide risk** could arise in relation to any widely-used payment system.

17 Risks in payment systems need to be identified, measured, monitored and controlled. The public policy interest in reducing risk may be greater than the sum of the individual interests of members. Even if the members are keen to reduce risk in a system, they may be unable to make the necessary changes because of difficulties in co-ordinating action among themselves.

The Bank's oversight role

18 Oversight of payment systems is a key element in the Bank's responsibility for the stability of the financial system as a whole. As the values moving through payment systems have increased, their robustness and risk management have become issues of increasing importance. The Bank's oversight role relates closely to its operational role as the provider of the settlement asset (central bank money) to some payment systems and as the ultimate provider of liquidity to the banking system and to the economy more widely. The Bank:

- is the settlement bank for the CHAPS Sterling, CHAPS Euro, and the CREST payment mechanisms, as well as for the predominantly retail systems BACS, Cheque and Credit Clearing and LINK. It also operates part of the CHAPS Sterling and CHAPS Euro systems, as well as the link between CHAPS Euro and the pan-European TARGET system;
- provides intra-day liquidity to members of CHAPS Sterling and CHAPS Euro by way of reverse repo against eligible securities; and
- is also itself a member of a number of UK payment systems, as banker to the UK government and, on a relatively small scale, to its other customers.

The Bank intends to publish separately a statement of its policy on the provision of settlement facilities to payment systems and their members.

19 The Memorandum of Understanding (MoU) between HM Treasury, the Bank and the FSA², agreed in October 1997, reflects the Bank's particular interest in payment systems as part of its financial stability role. The MoU sets out the Bank's responsibility:

²: Available on the Bank of England website

“...for the overall stability of the financial system as a whole which will involve:

i. ...

ii. financial system infrastructure, in particular payment systems at home and abroad. As the bankers’ bank, the Bank will stand at the heart of the system. It will fall to the Bank to advise the Chancellor, and answer for its advice, on any major problem inherent in the payments systems. The Bank will also be closely involved in developing and improving the infrastructure, and strengthening the system to help reduce systemic risk”.

20 Under the Financial Markets and Insolvency (Settlement Finality) Regulations 1999, the Bank has a statutory power, set out in more detail below, to “designate” UK payment systems so that their rules take precedence over normal insolvency law if a member becomes subject to insolvency proceedings.

The objectives of oversight

21 The Bank’s main objective in overseeing payment systems is to ensure that sufficient weight is given to risk reduction and management in their design and operation. But there must also be regard to efficiency – for example whether a system processes payments in a timely and reliable way, at reasonable cost. Designing and operating an extremely safe system would be self-defeating if it were so inefficient or expensive that no-one was prepared to use it and payment traffic went to other, less safe, alternatives.

22 While, however, the Bank has an interest in promoting efficient payment systems, formal oversight of the competitive environment for systems, their members and their users is a matter for the competition authorities.

The Bank’s oversight in practice

23 The Bank’s principal focus is on payment systems based in, or with significant activity in, the United Kingdom. But it also has an interest in foreign systems used by firms operating in the United Kingdom and in the adoption more generally of good practice in systems used by wholesale financial markets around the world, given that dislocation in them could affect London’s markets.

24 The intensity of the Bank’s oversight is proportionate to its assessment of the systemic or system-wide risks posed by a system. Because the primary focus is systemic risk, the Bank’s oversight concentrates on systems which process payments that are individually or cumulatively large and/or where the members do, or can, incur substantial involuntary exposures to one another in carrying out their payment activities. It is also concerned with systems where problems could have system-wide consequences, even if the values involved do not give rise to major systemic risks.

25 This work is led by the Financial Stability area of the Bank in its Market Infrastructure Division. The team seeks to use all information available to the Bank directly, including

through its provision of settlement services, and indirectly through exchanges with other relevant authorities in the United Kingdom and abroad. These include in particular the FSA (notably in respect of individual members of payment systems and of exchanges, clearing houses and securities settlement systems) and other central banks with similar oversight activities.

Analysis of risks

26 The principles to be used in assessing the safety and efficiency of payment systems and in conducting oversight have recently been reviewed and codified in a report published by the Bank for International Settlements (“Core Principles for Systemically Important Payment Systems”). Central banks around the world, including the Bank of England, have adopted these principles as a guide for their own oversight activities. They are set out in Annex 1.

Risks in payment systems

Risks in payment systems take a variety of forms and are usually categorised as follows:

Credit risk	the risk that a counterparty will not meet an obligation for full value, either when due or at any time thereafter.
Liquidity risk	the risk that a counterparty will not settle an obligation for full value when due, but at some time thereafter.
Operational risk	the risk that hardware or software problems, or human error, or malicious attack will cause a system to break down or malfunction giving rise to financial exposures and possible losses.
Legal risk	the risk that unexpected interpretation of the law or legal uncertainty will leave the payment system or members with unforeseen financial exposures and possible losses.

27 Oversight involves a concern with all of these different elements of risk. They need to be identified and, where possible, quantified and understood by payment system operators, members and the public. Oversight, as well as a concern for system design, therefore involves assessing the legal framework within which a system operates and its rules, operating procedures and operating environment, reviewing proposals for changes in rules or operating procedures, monitoring changes in the scale or nature of the payments processed, and changes to a system’s and members’ management procedures.

28 Where necessary or desirable the Bank may itself propose changes to the rules, design or operation of a system, or to the environment in which it operates (eg the legal framework), in order to eliminate, reduce or better manage risks. A central aim is to achieve prompt final

settlement in order to minimise the duration of financial exposures between members, especially when the amounts involved are large. This was the motive, for example, for a change, introduced in 1996, to the design of CHAPS, the United Kingdom's high-value payment system. Before the change, CHAPS settled on a deferred net basis under which banks exchanged payment messages during the day but settled the accumulated amounts on a multilateral net basis only at the end of the day. Until shortly before the change there were no mechanisms to monitor or contain the exposures that members ran on each other. Real-Time Gross Settlement (RTGS) allows payments between CHAPS member banks to be made in real-time across accounts at the Bank of England, so that the banks receive notification of incoming payments if, and only if, final settlement has occurred. Both CHAPS Sterling and CHAPS Euro, which began operations in 1999, now work on this basis.

29 A further central aim of the Bank is to achieve simultaneous exchange of value in systems used to settle financial market transactions, especially again where the amounts involved are large. Examples are the payment systems used for the settlement of wholesale foreign exchange transactions and wholesale securities transactions. The objective is to ensure that one side receives value if and only if the other side does. In the foreign exchange market, this is known as 'payment versus payment' (PvP) and in securities markets as 'delivery versus payment' (DvP). There are initiatives in hand to achieve PvP in the foreign exchange market through the private sector Continuous Linked Settlement (CLS) project, and to achieve DvP in central bank money in CREST in a way which avoids intraday exposures between settlement banks.

30 What oversight involves in practice must necessarily change to reflect changes in the pattern of payment flows through different payment systems and changes in the environment in which systems operate. For example, the increasing dependence of the whole financial sector, including payment systems, on information technology and telecommunications networks gives rise to an increased exposure to hardware and software failure. Overseers are, in consequence, taking an increased interest in this source of operational risk. The Bank recently worked with other authorities to ensure that all UK payment systems had made adequate preparations for the Year 2000 date change and reported regularly on the results of its enquiries. The work on Year 2000 has encouraged a wider debate amongst operators of market infrastructure, including payment systems, about the different kinds of operational risks and the adequacy of plans to provide continuity of operations and to respond more generally to actual or potential disruption.

31 The Bank does not monitor day-to-day operational aspects of payment systems or seek to resolve day-to-day operational problems (except where the Bank is itself operationally involved). Nor is the Bank responsible for relations between banks and others providing payment services and their customers. Primary responsibility for the reliable functioning of payment systems lies with system operators and system members. The Bank's aim is to establish that operators have taken reasonable steps to ensure the robustness of their systems.

32 Reducing operational risk means addressing technical reliability and redundancy, back-up facilities and contingency plans, security measures and internal controls. Oversight is intended

to ensure that system operators recognise these issues and address them. It also aims to identify common dependencies - for example, common reliance on a particular technology which might constitute a single point of failure for several different systems.

33 An example of this last point arises from the increasing reliance on outsourcing for parts of the payment system infrastructure (eg provision of a secure telecommunications network). Despite the advantages of outsourcing, it carries its own risks; there may, for example, be several payment systems, in the United Kingdom and/or overseas, which use the same supplier with an associated concentration of risk. The Bank has an interest in any concentration in the use of third party infrastructure suppliers by UK payment systems. A case in point is SWIFT, the Belgian-based international co-operative which provides network services to many payment systems and their members worldwide, including CHAPS Euro and CREST in the United Kingdom. The Bank participates in the joint oversight work conducted by the G10 central banks, led by the National Bank of Belgium which has specific powers to oversee SWIFT.

34 Systemic risk can also arise from legal uncertainty or unexpected legal judgments. For example, if the recipient of a payment is required to return funds to the payer because a court judges that the payment is not final, the recipient may have a financial exposure. Oversight involves working with government and other interested bodies (such as the Financial Law Panel) to identify any legal ambiguities and, where possible, initiating changes to UK or EU law in order to remove them. One example of reducing such legal uncertainty has been the implementation of the Settlement Finality Directive.

The Bank's role under the Financial Markets and Insolvency (Settlement Finality) Regulations 1999

35 These Regulations, which derive from the EU's Settlement Finality Directive, give the Bank and the FSA formal responsibilities to designate systems which can then benefit from the legal protections given by the Directive. The Bank and FSA must have regard to systemic risk in all cases when determining whether or not to make a designation order. The FSA designates recognised clearing houses and settlement systems. The Bank designates payment systems and, under the Regulations, advises the FSA in cases where a payment system is 'embedded' within, for example, a recognised settlement system that has applied to the FSA for designation.

36 Under the Regulations, the Bank must assess an applicant against a set of criteria. These include that the applicant must have adequate financial resources, appropriate default arrangements, rules which make clear certain key aspects of the system (including definition of the point of entry of a payment transfer order into the system and the point after which it cannot be revoked), and must have adequate arrangements for monitoring and enforcing compliance with its rules. In May 2000, the Bank designated the CHAPS Sterling and CHAPS Euro systems under these Regulations.

Co-operation and co-ordination with other UK authorities

37 Payment systems do not work in isolation. Members and users are affected by the operations of a payment system; likewise, a payment system is affected by the activities and risk management policies and practices of its members and their customers. The FSA has responsibility for regulating individual banks, including their participation in payment systems. To gain an overall picture, the Bank and the FSA need to share information about the main payment system members. The MoU requires that “the FSA and the Bank will establish information sharing arrangements, to ensure that all information which is or may be relevant to the discharge of their respective responsibilities will be shared fully and freely. Each will seek to provide the other with relevant information as requested”.

38 In addition, the Bank liaises with the other domestic authorities that have a direct interest in, or a potential impact on, payment systems. As noted above, the Government intends to introduce legislation to establish a new competition regime for payment systems. Close collaboration and effective information sharing between the Bank, HM Treasury and the competition authorities will continue to be necessary. This liaison is important also to ensure that actions taken by one of these parties do not cut across the objectives of the others.

International perspective

39 Almost all central banks oversee their national payment systems. Co-operation is particularly well developed amongst the central banks of the G10 countries and the central banks of the European Union. The degree of formality of the central bank’s oversight role varies from country to country and there have been a number of changes in recent years. Several central banks have recently published statements of, or relating to, their oversight role. In particular, the European Central Bank (ECB) has recently published a statement³ setting out the payment system oversight framework followed by the euro-area national central banks and the ECB. Furthermore, central banks and financial regulators have increasingly been inclined to formalise arrangements for co-operation and exchange of information in this area. For example, in 1994, the ECB’s predecessor, the European Monetary Institute, co-ordinated the development by all EU central banks and financial regulation authorities of an agreement on information sharing; and the ECB has recently been co-ordinating the production of a revised and extended agreement.

40 In addition, there has been increased international emphasis on the need for transparency in oversight arrangements. In September 1999, the International Monetary Fund’s Interim Committee of the Board (now the International Monetary and Finance Committee) adopted a ‘Code of Good Practices on Transparency in Monetary and Financial Policies: Declaration of Principles’⁴. Among other things, this code identifies desirable transparency practices for central banks in their conduct of financial policies, including their oversight of payment

3: “Role of the Eurosystem in the field of payment systems oversight”, June 2000. It is available on the ECB website at www.ecb.int.

4: This can be found at www.imf.org/external/np/mae/mft/index.htm In July 2000, the Executive Board of the IMF approved a Supporting Document to this Code: this can be found at the same web address.

systems. One of the recommendations is that “the role of oversight agencies with regard to payment systems should be publicly disclosed”.

41 In May 1998, the Committee on Payment and Settlement Systems of the G10 central banks established a Task Force on Payment Systems Principles and Practices. This group (under the chairmanship of John Trundle, Head of the Bank’s Market Infrastructure Division) considered what principles should govern the design and operation of payment systems in all countries, with the aim of developing a wide international consensus on such principles. The first part of the group’s report⁵ lists ten core principles and four responsibilities of central banks in applying the core principles. The first responsibility is that “the central bank should define clearly its payment system objectives and should disclose publicly its role and major policies with respect to systemically important payment systems”. The BIS published in July 2000 a second part of the report giving examples of ways of implementing the principles and discussing the detailed issues which need to be addressed.

How we report on our work

42 The Bank will report each year on its payments systems oversight activities at the time of its Annual Report. These reports will provide a brief summary of the Bank’s work over the previous year, in particular commenting on any changes in UK payment systems and on the Bank’s assessment of the consequences for risk. From time to time, the Bank also publishes detailed analyses of structural and risk issues related to payment and settlement systems in its *Financial Stability Review* and its *Quarterly Bulletin*.

Further information

43 Some Bank publications on payment systems topics are listed in Annex 2. Further information on the Bank’s oversight activities in the payments systems area and on their relationship to the Bank’s overall financial stability role is available on the Bank’s website, www.bankofengland.co.uk

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⁵: “Core Principles for Systemically Important Payment Systems: Report of the Task Force on Payment Systems Principles and Practices”. “Part 1 – The Core Principles” was published for consultation in December 1999 and revised in July 2000. “Part 2 – Implementing the Core Principles” was published for consultation in July 2000. Both parts are available on the BIS website at www.bis.org/publ/cpps34e.htm. A summary is attached as Annex 1.

Annex 1

Summary of the G10 report on Core Principles for systemically important payment systems

Public policy objectives: safety and efficiency in systemically important payment systems

Core Principles for systemically important payment systems

- I. The system should have a well-founded legal basis under all relevant jurisdictions.
- II. The system's rules and procedures should enable participants to have a clear understanding of the system's impact on each of the financial risks they incur through participation in it.
- III. The system should have clearly defined procedures for the management of credit risks and liquidity risks, which specify the respective responsibilities of the system operator and the participants and which provide appropriate incentives to manage and contain those risks.
- IV.* The system should provide prompt final settlement on the day of value, preferably during the day and at a minimum at the end of the day.
- V.* A system in which multilateral netting takes place should, at a minimum, be capable of ensuring the timely completion of daily settlements in the event of an inability to settle by the participant with the largest single settlement obligation.
- VI. Assets used for settlement should preferably be a claim on the central bank; where other assets are used, they should carry little or no credit risk and little or no liquidity risk.
- VII. The system should ensure a high degree of security and operational reliability and should have contingency arrangements for timely completion of daily processing.
- VIII. The system should provide a means of making payments which is practical for its users and efficient for the economy.
- IX. The system should have objective and publicly disclosed criteria for participation, which permit fair and open access.
- X. The system's governance arrangements should be effective, accountable and transparent.

* Systems should seek to exceed the minima included in these two Core Principles.

Responsibilities of the central bank in applying the Core Principles

- A. The central bank should define clearly its payment system objectives and should disclose publicly its role and major policies with respect to systemically important payment systems.
- B. The central bank should ensure that the systems it operates comply with the Core Principles.
- C. The central bank should oversee compliance with the Core Principles by systems it does not operate and it should have the ability to carry out this oversight.
- D. The central bank, in promoting payment system safety and efficiency through the Core Principles, should cooperate with other central banks and with any other relevant domestic or foreign authorities.

Annex 2

Bank of England publications on payment systems topics⁶

Bank of England (1989): 'Payment and Settlement Systems Risks and Efficiency: A Discussion Paper', London, November

Bank of England (1994): 'The development of a UK real-time gross settlement system' *Bank of England Quarterly Bulletin*, May

Fry, Kilato, Roger, Senderowicz, Sheppard, Solis and Trundle (1999): 'Payment Systems in Global Perspective', Routledge

Fry, M (1999): 'Risk, cost and liquidity in alternative Payment Systems' *Bank of England Quarterly Bulletin*, February

George, E (1990): 'Perspectives on Payment Systems', speech given at Group of Thirty Conference on Clearing and Settlement Systems in the World's Securities Markets, 14 March

George, E (1996): 'Payment and Settlement Strategy' Paper presented to the City Promotion Panel, London, 3 July, printed in *Bank of England Quarterly Bulletin*, August

George, E (1996): 'Risk Reduction in Payment and Settlement Systems: Gilbert Lecture', speech given on 22 October, printed in *Bank of England Quarterly Bulletin*, November

Hills, R and Rule, D (1999): 'Counterparty credit risk in wholesale payment and settlement systems', *Bank of England Financial Stability Review*, November

Leigh-Pemberton, R (1989): 'Challenges facing the Sterling Wholesale Payment Systems: Ernest Sykes Memorial Lecture', *Bank of England Quarterly Bulletin*, August

Leigh-Pemberton, R (1992): 'Developments in Wholesale Payment Systems', speech given at 12th Payment Systems International Conference, 6 October, printed in *Bank of England Quarterly Bulletin*, November

Quinn, B (1993): 'The UK Approach to Controlling Risk in Large-value Payment Systems', speech at the SIBOS Conference, Geneva, 8 September, printed in *Bank of England Quarterly Bulletin*, November

Sawyer, D and Trundle, J (2000): 'Core Principles for Systemically Important Payment Systems', *Bank of England Financial Stability Review*, June

Sheppard, D (1996): 'Handbooks in Central Banking No 8: Payment Systems' issued by the Bank of England Centre for Central Banking Studies, May

Sheppard, D (1999): 'Payment Systems in Global Perspective' (Summary of Fry et al (1999)) *Bank of England Financial Stability Review*, June

6: Many of these and other relevant publications are available on the Bank's website at www.bankofengland.co.uk