Payment Systems Oversight Report 2010

March 2011

BANK OF ENGLAND

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Executive summary

The purpose of this *Oversight Report* is to set out how the Bank carries out the oversight of key UK payment systems under Part 5 of the Banking Act 2009. The statutory framework for oversight was introduced on 31 December 2009; this is the first *Oversight Report* since the introduction of the Act.

The key UK payment systems have continued to demonstrate high levels of operational availability. Developments since the previous *Oversight Report* have contributed to further reductions in risk. But further steps could be taken to reduce risks, particularly credit and liquidity risks, which raise the possibility for a system to be a source of disruption or channel of contagion. These include:

- *Tiering*: the accession of two new members of CHAPS in 2010 and one new settlement member of CREST in 2009 has helped reduce tiering in these payment systems, but tiering remains a risk in UK payment arrangements and should be reduced.
- *Payment arrangements for central counterparties (CCPs)*: the two recognised CCPs should consider ways to reduce commercial bank risk in their payment arrangements.
- *Default arrangements*: Bacs should develop proposals to ensure that settlement can complete in all circumstances in the event of a member default.
- *Contingency arrangements*: payment systems should ensure they conduct a challenging programme of business continuity tests to prove their contingency arrangements.
- *Governance*: payment systems should ensure that their governance arrangements reflect corporate governance good practice, and provide appropriate strategic guidance and challenge to management.

The structure of this *Oversight Report* is as follows: after explaining why payment systems are at the core of central banking, Chapter 1 summarises the work that has been undertaken to implement the statutory framework for oversight under Part 5 of the Banking Act 2009. Chapter 2 summarises the main developments in individual payment systems and notes some areas where, in the Bank's view, further measures to reduce potential systemic risks should be undertaken.

Contents

Chapter 1: Oversight by the Bank of England

This chapter summarises the statutory framework for payment systems oversight under Part 5 of the Banking Act 2009 and how the Bank has implemented this framework over the past year.

1.1 Payment systems and central banks

The Bank of England's interest in payment systems is rooted in its operational role as the United Kingdom's central bank, and as banker to the banking system. The core sterling payment systems settle across the books of the Bank of England.

Payment systems

Payments transactions lie at the heart of any market economy. Trades in goods, services and financial instruments result in financial obligations. Stable facilities that allow convenient settlement of these financial obligations help the economy and financial markets function.

A payment system, in its simplest form, is an organised set of arrangements for transferring monetary value between participants. The transfer can be effected physically (for example, paper cheques) or electronically. It can be an immediate transfer, or a deferred payment. The corresponding set of arrangements can include technical infrastructure and networks, payments messages, and rules and agreements between the agents participating in the arrangements.

Payment systems can take many forms. They are used to settle large value wholesale and smaller retail transactions; financial markets transactions such as those in relation to the settlement of securities (including equities) and derivatives; and foreign exchange. Robust payment systems are also key to preserving the integrity of money.

In 2010, the value passing through recognised UK payment systems(1) was around £240 trillion. Consequently, the existence of safe and smoothly functioning payment and settlement systems is of great importance to the economy.

Just as the smooth functioning of payment systems can benefit the real economy, so disruption can be costly. Disruption could originate in a payment system itself, through a flaw in its design or through operational difficulties. But due to their central role in the financial system, payment systems can also act as channels of contagion or propagation for shocks that originate outside their own operations. For example, this could occur through the spread of losses from one participant to others; a participant acting as a 'liquidity sink';(2) disruption to other payment systems and related financial markets; or a loss of confidence in the payments infrastructure.

Central banks and the oversight of payment systems

Central banks provide the ultimate settlement asset, central bank money, which gives confidence to participating banks that payments obligations will be honoured. Payment systems are the mechanism by which monetary policy operations and liquidity provision to the banking system are ultimately effected. Robust payment systems help to maintain the integrity of money as a suitable medium of exchange. Payment systems are also required to effect emergency liquidity assistance and other measures to support financial stability.

Payment systems can act as a channel of contagion for disruptions to the financial system. The introduction of real-time gross settlement (RTGS) has been a major step in reducing risks arising from interbank exposures, but such risks still exist in deferred net settlement (DNS) systems and in correspondent banking relationships where banks access a payment system indirectly via a settlement bank.

It is therefore important that payment systems are designed and operated in a way that manages risks to the financial system as a whole to an acceptable level. If payment systems were operated only in the self-interest of their member participants, they might tend to underinvest in the mitigation of those system-wide risks. This can be countered by ensuring a broader risk perspective through central bank oversight.(3)

(1) Bacs, CHAPS, CLS, CREST, Faster Payments Service, ICE Clear Europe Ltd and LCH.Clearnet Ltd.
(2) That is, where a participant is able to receive but not send payments, drawing liquidity away from other participants and in turn affecting their ability to make payments.
(3) Also see Norman, B, Shaw, R and Speight, G (2011), 'The history of interbank settlement arrangements: exploring central banks' role in the payment system', *Bank of England Working Paper no. 412*, forthcoming, (www.bankofengland.co.uk/publications/workingpapers/wp412.pdf).

1.2 The Bank's oversight regime under the Banking Act

The Banking Act 2009 received Royal Assent in February 2009. Part 5 of the Act sets out a statutory framework for the Bank's oversight function, including powers to support it. A key element of the framework is the introduction of recognition criteria to identify payment systems, including payment systems embedded in clearing houses recognised by the Financial Services Authority (FSA), that should be made subject to the Bank's oversight. These criteria are reproduced below. The criteria make clear the link between payment systems oversight and financial stability. Other public authorities are responsible for matters such as competition (Office of Fair Trading) and consumer protection (FSA) arising through the operation of payment systems.

Banking Act 2009, section 185: Recognition criteria

(1) The Treasury may make a recognition order in respect of an inter-bank payment system only if satisfied that any deficiencies in the design of the system, or any disruption of its operation, would be likely —

(a) to threaten the stability of, or confidence in, the UK financial system, or

(b) to have serious consequences for business or other interests throughout the United Kingdom.

(2) In considering whether to specify a system the Treasury must have regard to —

(a) the number and value of transactions that the system presently processes or is likely to process in the future,

(b) the nature of the transactions that the system processes,

(c) whether those transactions or their equivalent could be handled by other systems,

(d) the relationship between the system and other systems, and

(e) whether the system is used by the Bank of England in the course of its role as a monetary authority.

The Bank's statutory oversight builds on its longstanding approach to overseeing payment systems, which was set out publicly in November 2000.(1) It was broadly based around the Core Principles for Systemically Important Payment Systems, published by the Committee on Payment and Settlement Systems (CPSS) in 2001.

Following the introduction of the statutory oversight framework, the Bank published fourteen Principles to which the operators of recognised payment systems are to have regard; the ten CPSS Core Principles and a further four Principles covering business risk, interdependencies, indirect participation in payment systems and outsourcing.(2) The Banking Act also makes available a graduated set of powers and tools to aid the Bank in discharging its oversight responsibilities effectively.

The Bank published its approach to statutory oversight under the Banking Act in September 2009,(3) including a consultation on Principles. A summary of consultation responses is available on the Bank's website.(4) Further guidance on the four additional Principles will be published in due course. In 2010, the CPSS and the International Organization of Securities Commissions (IOSCO) announced a review of international standards including the Core Principles. A draft of all revised standards is expected to be issued for public consultation in March 2011. The Bank will review its own Principles in light of those new proposals.

1.3 Implementation of statutory payment systems oversight under the Banking Act

Preparatory work and consultation

Certain elements of the new regime were commenced on 4 August 2009. These included the power for HM Treasury to recognise payment systems for oversight by the Bank, and for the Bank to collect information for the purposes of determining whether systems should be recognised. HM Treasury also published a guidance note outlining the recognition process.(5)

The remaining elements of the new statutory regime were commenced on 31 December 2009. At this point the Bank published its Principles for recognised payment systems under section 188 of the Banking Act.(6) It also published a statement of principles for financial penalties, as required by section 198 of the Banking Act.(7)

The Bank and the FSA also agreed a Memorandum of Understanding(8) setting out how they would communicate and co-operate in respect of oversight of payment systems under the respective regulatory regimes.

(1) See Bank of England (November 2000) *Oversight of Payment Systems* available at www.bankofengland.co.uk/publications/psor/ops.pdf.
(2) See list of Principles on page 21.
(3) www.bankofengland.co.uk/publications/other/financialstability/oips/oips090928.pdf.
(4) www.bankofengland.co.uk/financialstability/role/risk_reduction/payment_systems_oversight/pdf/oips-response.pdf.
(5) http://webarchive.nationalarchives.gov.uk/20100406030058/http://hm-treasury.gov.uk/d/bankingact_guidancenote_040809.pdf.
(6) www.bankofengland.co.uk/financialstability/role/risk_reduction/payment_systems_oversight/principles_oversight.htm.
(7) www.bankofengland.co.uk/financialstability/role/risk_reduction/payment_systems_oversight/pdf/principles-financial-penalties.pdf.
(8) www.bankofengland.co.uk/publications/other/financialstability/BoE-FSA-MoU.pdf.

Activity since the commencement of the regime

In January 2010, HM Treasury recognised by order the following interbank payment systems for oversight by the Bank of England: Bacs, CHAPS, CLS, and the embedded payment arrangements within CREST and LCH.Clearnet Ltd. In February 2010, HM Treasury also recognised the Faster Payments Service and the embedded payment arrangements within ICE Clear Europe Ltd.

In April 2010, HM Treasury was given a reserve power under the Financial Services Act 2010 to extend the reach of the Bank's oversight powers to entities that provide technology, communication or other services (service providers) to the operators of recognised payment systems. The reserve power could be activated by HM Treasury if it were decided that the Bank's oversight would be more effective if requirements were also imposed on service providers, rather than just on system operators. This reserve power has not been used so far.

Drawing on its risk assessments of the recognised payment systems, the Bank identified a number of issues and areas for further risk mitigation. The Bank communicated these to the operators of recognised systems, with deadlines set for the completion of each action.

For one recognised system, CLS, the Bank delivers its oversight by participating in a co-operative arrangement (the CLS Oversight Committee) led by the Federal Reserve.(1) The Bank has concluded that the majority of issues outlined in its Principles are already covered by work being carried out by the Federal Reserve and the CLS Oversight Committee. However, the Bank is seeking further information in some areas and retains the option, should it be needed, to pursue issues itself.

Gathering information

The Bank has developed a standard core information list for regular data collection from the operators of recognised payment systems. The Bank has also decided that information requests (whether 'core' or not) should be made under section 204 of the Banking Act, which gives the Bank a power to collect information and provides a framework setting out how the Bank may use any such information.

The terms on which the Bank may disclose or publish information gathered under section 204 were expanded and clarified by Regulations(2) made by HM Treasury in March 2010.

Guidance on Principles XI–XIV for recognised payment systems

Feedback from the Bank's consultation on its Principles in late 2009 indicated that system operators would welcome more detailed guidance on the Bank's new Principles. The Bank circulated draft guidance for comment in May 2010 and final guidance will be published in due course.

The guidance will clarify and explain the main objectives of the new Principles and outline the risks and issues each Principle seeks to address. It will also include an 'implementation summary' for each Principle, setting out the key elements to which operators of recognised payment systems should have regard.

1.4 Horizon scanning

It is possible that interbank payment systems not currently recognised by HM Treasury may satisfy the criteria for recognition in section 185 of the Banking Act at some future date. This may be due to changes in the nature of their activities, volumes and values, or in relation to other factors specified in the Act. Therefore, as part of its ongoing surveillance work on payment systems and infrastructure, the Bank maintains a 'horizon scanning' role. The Bank, FSA and HM Treasury meet periodically to consider whether there are systems that may satisfy the criteria for recognition, or any recognised systems that no longer satisfy these criteria.

The Bank also holds occasional meetings with systems and infrastructure providers (including those providing outsourced services to recognised payment systems) to assist with information gathering, or to discuss broader infrastructure developments. A number of such meetings have been held since the commencement of the statutory regime.

1.5 Co-ordination with the FSA

Under the Financial Services and Markets Act 2000 (FSMA), the FSA regulates financial services markets, exchanges, clearing houses, settlement systems and firms in the United Kingdom. Three Recognised Clearing Houses (Euroclear UK and Ireland, LCH.Clearnet Ltd and ICE Clear Europe Ltd) contain embedded payment arrangements that have been recognised by HM Treasury as meeting the criteria for recognition under the Banking Act, and so are also overseen by the Bank under the statutory regime.

The Bank and FSA are committed to minimising duplication, insofar as this is consistent with their statutory duties. Overseers and regulators hold regular liaison meetings to share views on issues in relation to systems with embedded payment arrangements. They undertake co-ordinated work where this represents an effective use of resources. Where possible, a common set of information and reporting frequency is agreed to reduce the reporting burden on the regulated entity. But both authorities continue to meet independently with recognised bodies for their formal oversight/regulatory meetings. Preparation for international

(1) See 'Co-operative arrangements for CLS' in Section 1.6 of this *Report*.
(2) The Banking Act 2009 (Inter-Bank Payments Systems) (Disclosure and Publication of Specified Information) Regulations 2010 (SI 2010/828).

Box 1 Tiering

Participation in UK payment and settlement systems is characterised in many cases by a high degree of 'tiering'. Tiered participation occurs when direct participants in a system provide payment services to other institutions to allow them to access the system indirectly. These indirect participants typically outsource technical infrastructure and the management of most of the credit, liquidity and operational risks associated with participation to the corresponding direct member. Although the indirect participant/customer will usually remain principal to any underlying transactions, the system holds the direct member accountable in respect of the payment arrangements for those transactions.

Risks to financial stability

Tiering can generate efficiency benefits through, for example, economies of scale. However, tiering can also give rise to risks. Most significantly, it can give rise to credit, liquidity and operational risks for the parties involved; these are discussed below. Historically, regulatory capital and liquidity requirements have not had a strong focus on intraday risk exposures.

Credit risk

Direct participants bear credit risk on their clients when they extend intraday unsecured credit. Similarly, clients are exposed to direct participants to the extent of any credit balances they hold. Direct participants typically control their exposures through the allocation of credit limits to payments business by system. Their risk assessment of clients should also address the specific risks that arise from acting as a settlement bank — for example, the potential exposure in the event of a 'run' on a customer bank — or the nature of the controls available in a particular system to manage the exposure. Moreover, settlement banks should have well-developed contingency plans for responding to a customer in financial distress.

Liquidity risk

In tiered payment arrangements, liquidity risk can materialise for both the direct and indirect participants. The direct participant can be exposed to liquidity risk if it uses its own liquidity to make payments on behalf of the client, but the client's counterparties delay payments that are due back. The client can also face liquidity risk if its direct participant cuts its limits at short notice.

The FSA's new liquidity regime explicitly addresses risks that could arise in the event of stressed outflows from an institution by requiring banks to have intraday liquidity resources sufficient to deal with such outflows. For example, for an indirect participant this may mean that it negotiates a committed liquidity line from its correspondent, or maintains a pool of high-quality collateral that can be liquidated if necessary. It might encourage some indirect participants to seek direct membership of the payment system, where eligible.

Operational risk

The chief operational risk faced by indirect participants is that a problem with their direct participant — financial or operational — may leave them unable to make or receive payments. This could put them at risk, for example, of defaulting on contracts. Some elements of this risk can be mitigated by utilising multiple direct participants, although this is likely to be more costly and not all counterparties may be able to redirect payments to an alternative correspondent at short notice.

More seriously, a failure on the part of a direct participant acting for many indirect participants may mean that all are unable to access the payment system. As well as disrupting payment flows across the system, this could undermine confidence in underlying markets.

Oversight approach to tiering

The risks to financial stability from tiering have necessitated a separate Principle in the Bank's framework for oversight. Principle XIII seeks to increase understanding and improve the management of these risks. Operators of recognised payment systems must have regard to this Principle. It will mean that payment system operators broaden the conception of their role. A fuller explanation of these points can be found in the Bank's forthcoming guidance document.

Following the introduction of the Principle on indirect participation, the Bank has initially sought to identify the current level of knowledge within operators of recognised payment systems. First, operators have been asked to report basic information about the structure of indirect participation in their systems and the most important relationships. Where they did not have such information, they were asked to set out a plan for obtaining it. Feedback suggests that operators have found it difficult to obtain this information in practice. The Bank plans to explore other means to obtain it, including from direct participants in each system. Second, operators have been asked to share any analysis or advice they had received into whether legal uncertainties existed in relation to indirect participants' transactions.

By encouraging this work the Bank hopes to promote a greater degree of understanding of the risks on the part of system operators and system members.

The Bank works with the FSA to ensure that prudential regulators of banks are aware of these risks. Following joint discussions with major settlement banks the FSA published *Good Practices for Settlement Bank management of potential risk exposures to customer banks* in January 2011.[1]

(1) www.fsa.gov.uk/pubs/guidance/fg11_02.pdf.

co-operative oversight meetings is closely co-ordinated and joint project work is also undertaken.

The FSA is also interested in payment systems by virtue of being the regulator of many participants in recognised payment systems, including UK banks and the UK subsidiaries of foreign banks. Regular liaison meetings are held between the Bank's oversight team and FSA financial stability staff to discuss issues of common interest, but not currently with line supervisors of those firms.

1.6 International co-operative oversight arrangements

Several of the recognised systems operate cross border and so are important to the financial systems of a number of countries. The interests of the various relevant national authorities are best met through co-operative oversight involving the relevant national authorities, underpinned by global standards.

The Bank accordingly participates in co-operative oversight colleges for CLS, the LCH.Clearnet Group, Euroclear SA and SWIFT. Discussions are ongoing about establishing international co-operative arrangements for ICE Clear Europe Ltd.

The Bank is also active in international groups of overseers. For example, the Bank is a member of CPSS and the ECB's Payment and Settlement Systems Committee.

Co-operative arrangements for CLS

CLS Bank is based in New York and the US Federal Reserve is its supervisor and lead overseer. The Federal Reserve also chairs the CLS Oversight Committee (OC). The OC comprises 23 central banks and its working arrangements are publicly available.[1] The OC meets in person at least annually, along with more frequent written communication and teleconferences. It discusses the risks in new products and services as well as issues arising from ongoing oversight of CLS such as liquidity risk across the CLS system.

Co-operative arrangements for LCH.Clearnet

The LCH.Clearnet Group is incorporated in the United Kingdom and is subject to supervision on a consolidated basis by the French Authorité de Contrôle Prudentiel.[2] The central banks and regulatory authorities from Belgium, France, the Netherlands, Portugal and the United Kingdom participate in co-operative oversight meetings at both high-level and working-level, with rotating chairmanship of these meetings. The college discusses issues relevant at the group level.

Co-operative arrangements for the Euroclear Group

The holding company of the Euroclear Group (ESA) is headquartered in Belgium and the National Bank of Belgium (NBB) and Commission Bancaire, Financiere et des Assurances jointly chair the ESA High Level Committee (HLC) and the ESA Technical Committee (TC). The HLC and TC comprise six central banks[3] and six national regulators and the general working arrangements are published by the NBB in its *Financial Stability Review*.[4] The ESA HLC meets biannually and the ESA TC meets quarterly. They discuss common services delivered by ESA to the Central Securities Depositories (CSDs) in the Group and issues such as governance, operational reliability and risk management.

Co-operative arrangements for SWIFT

Although SWIFT, the messaging service, is not a recognised payment system, its services are important given its use by financial market infrastructures in the UK financial system. It has its head office in Belgium and the NBB is its lead overseer and chairs the oversight arrangements. The twelve co-operating central banks are organised in a two-tier structure of senior and technical level. These working arrangements are published by the NBB in its *Financial Stability Review*.[5] The senior level oversight group meets twice a year and discusses oversight strategy and policies related to SWIFT such as the recent Distributed Architecture project and cost reduction exercises. The technical level group meets four to five times a year with SWIFT management and internal audit.

1.7 Settlement Finality Directive

The Bank also continues to have a role in considering applications for the designation of payment systems under the Financial Markets and Insolvency (Settlement Finality) Regulations 1999 (FMIRs), which implement the EU Settlement Finality Directive in the United Kingdom. Such cases would be triggered by a payment system applying to the Bank for designation, or by the FSA consulting the Bank relating to an application that it had received. This is irrespective of whether or not that system has been recognised by HM Treasury for statutory oversight by the Bank.

In 2010, the Bank designated the Faster Payments Service under the FMIRs and was consulted by the FSA regarding a number of other applications. Other payment systems currently designated by the Bank are CHAPS, CLS, Bacs and the Cheque and Credit Clearings.

(1) www.federalreserve.gov/paymentsystems/cls_protocol.htm.
(2) This is because LCH.Clearnet SA, the Paris-based CCP in the Group, is regulated as a credit institution.
(3) National Bank of Belgium, Banque de France, Bank of England, De Nederlandsche Bank, Sveriges Riksbank, and Suomen Pankki. The Central Bank of Ireland participates as an observer.
(4) www.nbb.be/doc/ts/Publications/FSR/FSR_2007EN.pdf.
(5) www.nbb.be/doc/ts/Publications/FSR/FSR_2005_EN.pdf.

1.8 Co-operation with the Payments Council

The Payments Council (PC) was formed in March 2007 to be a strategic private sector governance body for the UK payments industry. Its objectives are to help foster innovation and co-operation in UK payment services, maintain their integrity and ensure that payment systems are open and accountable. The Bank meets with the PC on a regular basis, and attends PC board meetings in an observer capacity, but is not responsible for its work or mandate.

Box 2 Proposed changes to UK financial regulation including payment systems and market infrastructures

At the Mansion House on 16 June 2010, the Chancellor announced plans to change the system of UK financial regulation. This was followed up by consultations published by HM Treasury.(1) The proposals include the establishment of a new Prudential Regulation Authority under the Bank of England, a Financial Policy Committee of the Bank with responsibilities for macroprudential regulation, and a separate Financial Conduct Authority (FCA).

Some of the proposals relate to wholesale financial markets and the infrastructures that support those markets. HM Government has proposed that the regulation and supervision of settlement systems and central counterparty clearing houses (CCPs) be transferred to the Bank to sit alongside its existing role in the oversight of recognised payment systems. The FCA will be responsible for regulating exchanges and other trading platform providers. The Bank will co-ordinate with the FCA and other relevant authorities as appropriate.

(1) www.hm-treasury.gov.uk/d/consult_financial_regulation_condoc.pdf and www.hm-treasury.gov.uk/d/consult_newfinancial_regulation170211.pdf.

Table A Volumes, values and main payment types in recognised payment systems[a]

	Volume		Value (£ millions)[b]		
	2010	*2009*	**2010**	*2009*	Main payment types
Payment System					
CHAPS	127,071	*126,125*	224,193	*235,218*	• Settlement of financial market transactions • CLS pay-ins and pay-outs • House purchases
CREST (payment arrangements supporting CREST)[c]					
Sterling	182,585	*198,521*	508,153	*640,958*	• Settlement of gilts, equities and money market instruments (including in respect of OMOs and repo markets transactions more generally)
US dollar	3,164	*2,570*	1,603	*1,525*	
Euro	5,341	–	975	*617*	
Bacs	22,421,856	*22,376,754*	16,057	*15,321*	• Salary and benefit payments • Standing Orders and Direct Debit payments • Telephone and internet banking
Faster Payments Service	1,715,328	*1,166,188*	661	*420*	• Telephone and internet banking • Single immediate and forward dated payments • Standing Order payments
LCH.Clearnet Ltd (Protected Payment System)[d]					
Sterling	51	*49*	1,412	*2,474*	• Settlement in respect of cash margin payments
US dollar	49	*39*	2,357	*2,552*	• Payments for commodity deliveries
Euro	46	*33*	1,903	*1,909*	• Cash settlements
Other	114	*136*	283	*334*	• Default fund contributions
Total LCH	260	*287*	5,955	*7,269*	
ICE Clear Europe Ltd (Assured Payment System)[e]					
Sterling	16	*15*	39	*37*	• Settlement in respect of cash margin payments
US dollar	47	*50*	701	*875*	• Payments for commodity deliveries
Euro	45	*33*	422	*244*	• Cash settlements
Total ICE	107	*98*	1,162	*1,156*	• Default fund contributions
CLS[f]					
All currencies	764,291	*579,569*	2,682,527	*2,167,939*	• Settlement of foreign exchange trades
Sterling[g]	59,404	*48,746*	196,372	*160,706*	

Sources: Bank of England, CLS Bank International, Euroclear UK & Ireland, ICE Clear Europe Ltd, LCH.Clearnet Ltd and UK Payments Administration Ltd.

(a) Daily averages unless otherwise stated.
(b) US dollar, euro and 'other' figures are shown as sterling equivalent.
(c) 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). Volume figures in euro for 2009 not available.
(d) Figures for the LCH.Clearnet Ltd Protected Payment System (PPS) refer to the sum of all (net) payments between LCH.Clearnet Ltd and its members through the PPS. Volume figures are based on the period 3 February 2009 to 16 February 2009 for 2009, and 1 December 2010 to 10 December 2010 for 2010.
(e) Figures for the ICE Clear Europe Ltd Assured Payment System (APS) refer to the sum of all (net) payments between ICE Clear Europe Ltd and its members through the APS.
(f) Each transaction has two 'sides'. Both sides are counted in the volume and value figures.
(g) Trades in which one leg is denominated in sterling.

Chapter 2: Key developments in the main UK payment systems

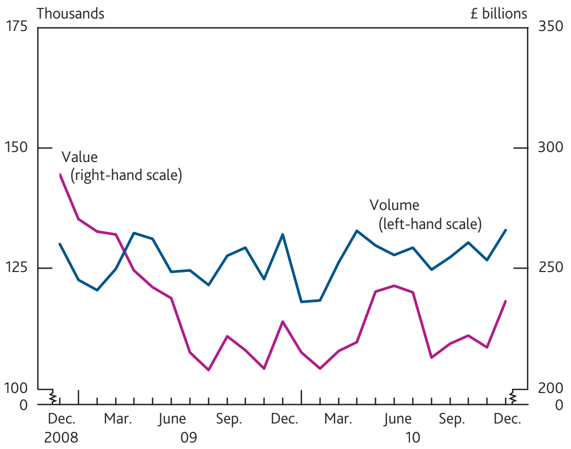
This chapter discusses the recognised payment systems, as well as the main developments in SWIFT, the messaging service provider. This chapter includes areas where, in the Bank's view, further risk reducing measures should be undertaken.

2.1 CHAPS

CHAPS is the United Kingdom's high-value payment system, providing real-time gross settlement (RTGS) of sterling transfers between members. The RTGS infrastructure is run by the Bank. The CHAPS Clearing Company Ltd (CHAPSCo) is responsible for management of the CHAPS scheme.

The average volume of payments made in CHAPS has remained broadly stable in 2010 (**Chart 1**). The average value of payments has also stayed broadly stable, following a noticeable decline in the first half of 2009.

Chart 1 Monthly average of daily volumes and values of CHAPS sterling payments[(a)]



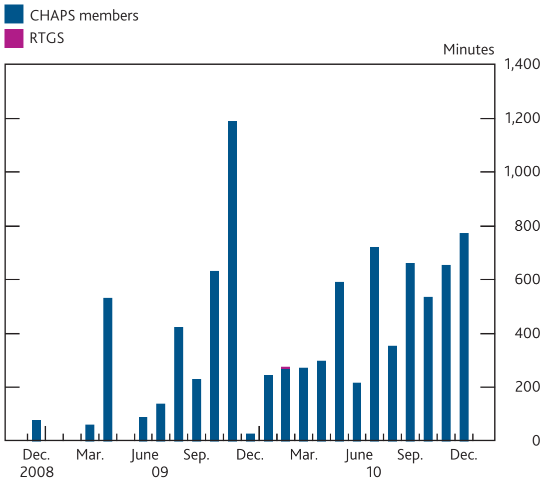
Source: Bank of England.

(a) Average for calendar month.

CHAPS has continued to exhibit high levels of operational availability: since the start of 2009 there has been only one eight minute period (in February 2010) in which RTGS was unable to process CHAPS payments. However, **Chart 2** shows that average member downtime has been higher in 2010 than 2009.

There have been a number of developments on issues highlighted in the previous *Oversight Report*.

Chart 2 Monthly downtime of RTGS and CHAPS sterling members



Sources: CHAPSCo and Bank of England.

JPMorgan and Bank of America became CHAPS members in 2010 taking the number of members to 18 including the Bank. The Bank welcomes their decision to join CHAPS, which has resulted in a reduction in tiering. However, CHAPS remains a highly tiered payment system. While some degree of tiering is beneficial on efficiency grounds, it can also introduce a number of risks (see Box 1). Over the coming year, the Bank will be discussing the implications of the Principle relating to indirect participation with CHAPSCo and CHAPS members.

CHAPS has completed the introduction of formal written membership agreements between the scheme and its members. This brings CHAPS into line with the legal arrangements in the other major UK payment systems.

In 2010, CHAPSCo introduced a provision for multiple settlement cycles to take place in 'Bypass mode'.[(1)] This reduces the settlement risk that is introduced when Bypass mode is invoked and hence makes it a more attractive business continuity option. The members and scheme will be regularly testing these new arrangements so that their operation can be as smooth as possible if invoked. CHAPSCo is also considering how to ensure settlement can complete in the event of a member default while in Bypass mode, making clear where losses would fall.

(1) Bypass mode allows banks to continue to make payments during a prolonged outage of RTGS. In Bypass, CHAPS reverts to a deferred net settlement model.

Given the systemic importance of CHAPS, it is important that CHAPSCo and the CHAPS members are able to enact contingency procedures efficiently when the need arises. In recent years the benchmark for resilience of critical financial infrastructure has continued to rise. While CHAPS's business continuity, resilience and recovery provisions and procedures are extensive, arrangements could be strengthened further and tested more rigorously. CHAPS should also expand the range of testing to explore the impact of member outages and the associated contingency arrangements.

CHAPSCo is the system operator for the Faster Payments Service as well as CHAPS. CHAPSCo needs to demonstrate that it has sufficient resources to satisfy the needs of both schemes during both business as usual and contingency situations. Since February 2010, CHAPSCo has also shared management, on an interim basis, with Bacs Payment Schemes Ltd (Bacs) after appropriate arrangements were not in place for a permanent appointment following the retirement of the company manager. CHAPSCo commissioned jointly with Bacs an independent review of the governance and management of the schemes and a number of changes have been recommended. The Bank strongly encouraged the independent review, and will consider carefully proposals for permanent arrangements for governance and management put forward by CHAPSCo and Bacs.

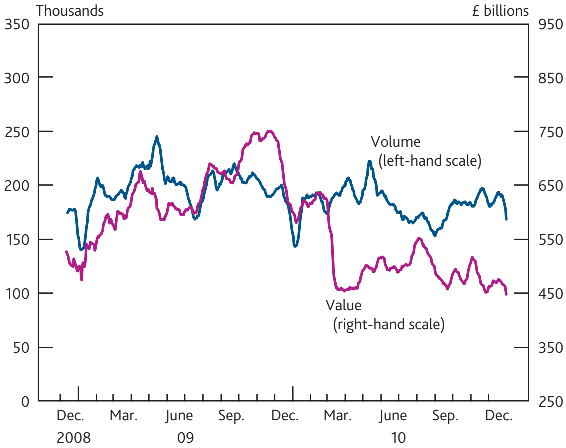
The introduction of enhanced RTGS 'Business Intelligence', due in 2011, should deliver better data to member banks and enable them to manage better their liquidity risks arising from the payment system. Longer term, CHAPSCo is considering options for the introduction of liquidity saving mechanisms and proposals for further improvements to back up arrangements for RTGS. The Bank will continue to monitor developments.

2.2 CREST

The CREST system (CREST) is the United Kingdom's securities settlement system providing a Delivery-versus-Payment (DvP) settlement service for gilts, equities, and money market instruments. CREST is operated by Euroclear UK & Ireland Ltd (EUI), a wholly-owned subsidiary of Euroclear SA/NV (ESA). EUI is incorporated in the United Kingdom and subject to supervision by the FSA as a Recognised Clearing House under the Financial Services and Markets Act (FSMA) 2000 and as an operator under the Uncertificated Securities Regulations 2001. The Bank oversees the sterling, euro, and US dollar interbank payment arrangements supporting CREST settlement.[1]

Sterling DvP values peaked in November 2009 at an average daily value of £742 billion but have since fallen steadily to an average daily value of £459 billion in December 2010 (**Chart 3**).

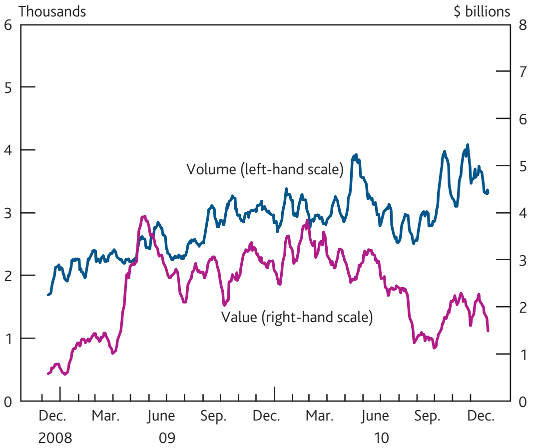
Chart 3 Daily volumes and values of sterling DvP in CREST[(a)(b)]



Source: Euroclear UK & Ireland.

(a) Ten-day moving averages.
(b) Total values and volumes excluding self-collateralising repos.

Chart 4 Daily volumes and values of CREST US dollar settlement[(a)]



Source: Euroclear UK & Ireland.

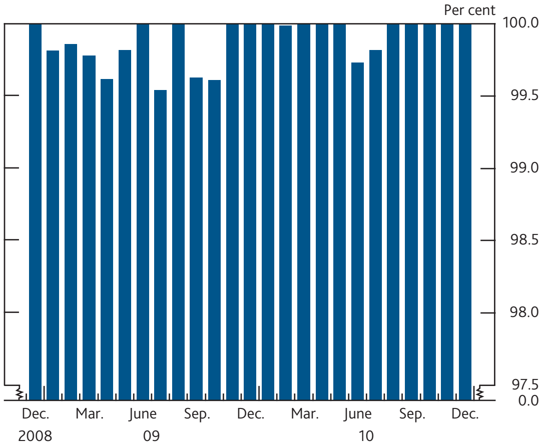
(a) Ten-day moving averages.

US dollar DvP values have fallen from an average daily value of $3.2 billion in March 2010 to $1.8 billion in December 2010 (**Chart 4**). Euro DvP values have fallen from daily peaks of up to €4 billion in March 2010 to an average daily value of €476 million in December 2010.

JPMorgan became a CREST settlement bank in October 2009 for sterling, euro, and US dollar. This has helped to reduce tiering in CREST. There are now fourteen CREST settlement banks including the Bank of England. All bar the Bank of England and UBS (both sterling only) support sterling, euro and US dollar settlement.

(1) The Bank, the FSA and the Central Bank of Ireland have entered into a Memorandum of Understanding for co-operation on the regulation of the services provided by EUI relating to the settlement of Irish securities, which account for the bulk of the settlement in euro.

Chart 5 CREST system availability for settlement



Source: Euroclear UK & Ireland.

Chart 5 shows that CREST availability has improved relative to previous performance since November 2009. That may in part be the result of EUI and ESA reviewing and improving their project, change and incident management processes.

ESA announced a revised strategy in July 2010. The strategy involves ESA's moving away from its earlier consolidated Single Platform approach to a more localised strategy, aiming to deliver tangible benefits to clients earlier. The Bank and the FSA will closely follow the development and implementation of ESA's new strategy. The Bank and the FSA will monitor to what extent the requirements of EUI and the UK market are being sufficiently taken into account in ESA's governance framework (including through consultation with UK market participants).

ESA's revised strategy involves new services being developed on existing platforms. Therefore, EUI will continue to use and develop the CREST system rather than replacing it with the Single Platform, as previously planned. It will be important that EUI's CREST legacy systems can continue to support adequately the CREST service and the development of new functionality. Two specific initiatives are of particular interest.

First, EUI plans to launch its Term Delivery by Value service (TDBV) by mid-2011. The Bank welcomes the introduction of TDBV. TDBV should reduce credit, liquidity, and operational risks caused by the daily unwinding at the start of day and the re-creation at the end of day of overnight DBVs, which market participants currently roll over on a daily basis to support term transactions.

Second, EUI plans to launch a revision to its Central Bank Money (CBM) service in 2012 Q1. CBM will replace the existing 'supply-driven' self-collateralisation repo model with a new 'demand-driven' auto-collateralisation model. CBM should reduce the demand for sterling liquidity supplied by the Bank.

EUI will need to ensure that the design of CBM and TDBV provides appropriate functions and arrangements to manage liquidity and credit risks effectively. The Bank will monitor EUI's plans for ensuring the smooth implementation of TDBV and CBM.

The Bank's view is that US dollar settlement arrangements continue to be less robust than those for sterling and euro settlement. This is because they are supported by the settlement of bilateral net obligations between commercial settlement banks in commercial bank money at the end of day, which may create intraday credit exposures for settlement banks. The Bank would seek improvements in US dollar arrangements if the values were to increase significantly. EUI needs to revisit previous work on the arrangements so that these can be made operational in that event.

The Bank and EUI are working together to review how the Settlement Bank Committee (SBC) could act as a better forum for discussing issues concerning CREST interbank payment arrangements. The Bank's view is that senior level settlement bank involvement at the SBC is necessary in order for the UK market to discuss, agree, and properly resolve issues, such as the development and implementation of TDBV and CBM.

2.3 Bacs

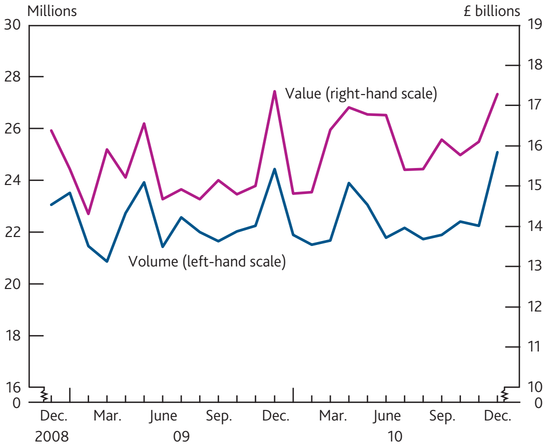
Bacs is the United Kingdom's largest retail payment system by volume. It operates as a deferred multilateral net settlement system, with a three-day clearing cycle, settling across accounts at the Bank. Bacs Payment Schemes Ltd (Bacs) is responsible for the Bacs Direct Credit, Direct Debit and Standing Order products. The processing of transactions is currently outsourced to a single third party provider, VocaLink Ltd. There are currently 15 direct members of Bacs, 743 Bacs approved Bureaux(1) and 38 Affiliates.(2)

Throughout 2009/10, the volumes and values in Bacs remained stable (**Chart 6**) despite the ongoing migration of Standing Orders and some Direct Credits to the Faster Payments Service. Bacs expects that volumes and values will increase as a result of the continued uptake of Direct Debits more than offsetting migration of Standing Orders.

The migration of payments is expected to continue with the relevant Payment Services Regulations coming into effect from January 2012(3) (**Chart 7**). As a result, members need to

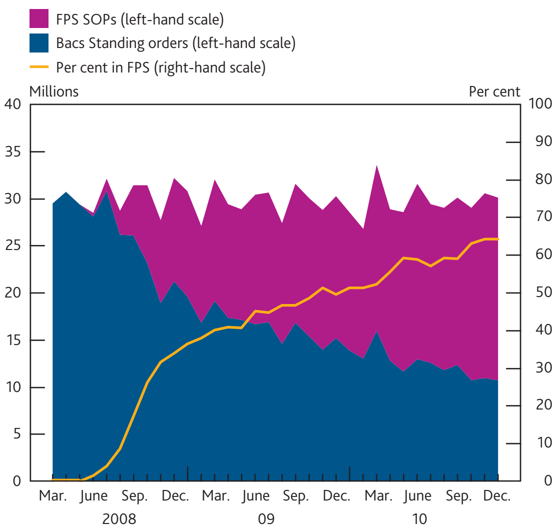
(1) A Bacs approved Bureau is an organisation that may submit financial transactions through Bacs on behalf of third parties.
(2) The Bacs Affiliate class was introduced in December 2005. Current membership includes: originators of high volumes of Direct Debits and/or Bacs Direct Credit payments; current account providers; providers of financial or telecommunication software; and Bacs Bureau service providers.
(3) Under Regulation 70 of the Payment Services Regulations, payments must be credited to the payee's account by close of business on the business day following the day on which the payment order was received.

Chart 6 Monthly average of daily volumes and values of payments processed in Bacs



Sources: UK Payments Administration Ltd and Bank calculations.

Chart 7 Standing order volumes[(a)] in Bacs and Faster Payments Service (FPS)



Sources: UK Payments Administration Ltd and Bank calculations.

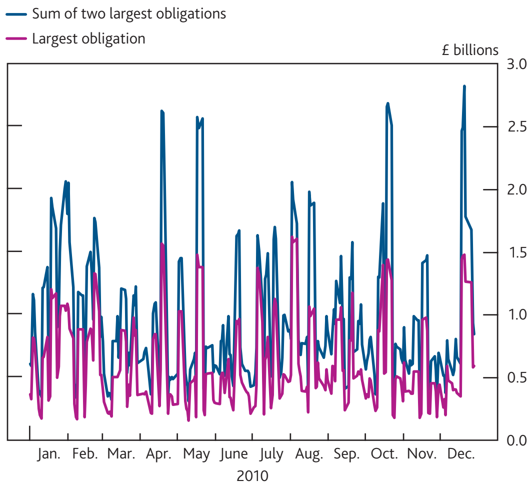
(a) Monthly volumes.

undertake a controlled migration to mitigate the risk of unexpected operational disruptions caused by this.

The Bacs central infrastructure has continued to show resilience, with 100% availability since 2009. In addition, Bacs has agreed a number of improvements to the Service Level Agreement (SLA) with VocaLink. These were implemented in August 2010. To ensure continuity of service, Bacs introduced an extensive disaster recovery framework in 2008 and will need to continue to conduct regular tests of this framework going forward. To develop the framework further, the potential for re-routing payments through other schemes needs to be explored on a cross-scheme basis.

As Bacs is a deferred net settlement (DNS) system, risks arise through obligations between members during settlement cycles. **Chart 8** illustrates the large value of obligations that can arise over the course of the three-day clearing cycle.

Chart 8 Obligations[(a)] generated over the course of three-day cycle in Bacs and Cheque and Credit Clearings



Sources: UK Payments Administration Ltd, Bacs and Bank calculations.

(a) Three-day rolling measure of net debit positions.

The introduction in 2005 of formal default arrangements under the Liquidity Funding and Collateralisation Agreement (LFCA), which is shared by Bacs and the Cheque and Credit Clearings, significantly reduced settlement risk in these systems. However, since a member's obligations can still exceed the total liquidity committed under the LFCA, some residual settlement risk remains.

Over the past year amendments have been made to the LFCA, the most important of these being the introduction of 'regression'. This functionality was introduced as part of the NewBacs programme and enables the wholesale removal of a defaulting member's payments on the day of default, allowing the surviving members to settle. As Bacs operates on a three-day cycle, removing an affected member's payments on the day of default (before the payments become irrevocable) would reduce the probability of the settlement obligation being larger than the aggregate liquidity committed under the LFCA. Bacs needs to undertake regular testing of the underlying process.

Under current arrangements the net debit position of a defaulting member could still exceed the amount of committed liquidity, and there are no binding arrangements in place to ensure that any shortfall in liquidity would be met. Settlement banks cannot currently control their net debit settlement positions. While functionality exists in Bacs to achieve this, the LFCA is currently shared with the Cheque and Credit Clearings where it is not possible to introduce debit caps. Bacs needs to develop proposals for modifying the LFCA to ensure settlement can complete in all circumstances and the exposures in Bacs are limited.

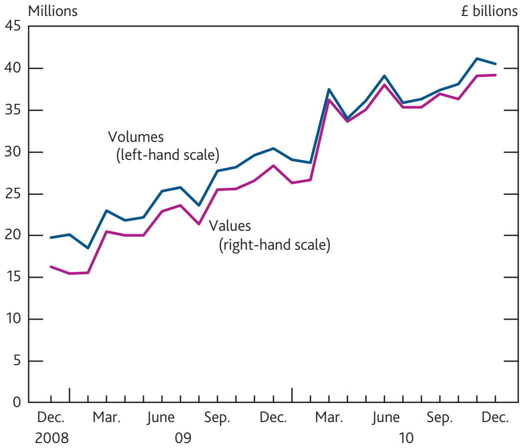
As noted above, Bacs has shared management with CHAPSCo on an interim basis since February 2010. An independent review was commissioned jointly with CHAPSCo to consider governance and management of the schemes.

2.4 Faster Payments Service

The Faster Payments Service (FPS) is an automated clearing service for electronic retail transactions including telephone and internet banking. It was launched in May 2008. It operates as a multilateral DNS system and processes transactions in near real time 24 hours a day, seven days a week, settling in three cycles per working day.(1) FPS is managed by CHAPSCo, providing clearing services to FPS members and their customers. Processing, through the 'Central Infrastructure', is currently outsourced to a single service provider, VocaLink Ltd.

As shown in **Chart 9**, FPS has seen a steady increase in volumes and values. This trend is likely to continue for several reasons. These include: member banks migrating payments to FPS from other retail systems and lower value CHAPS payments; more sort codes becoming addressable within FPS; and the maximum values for individual payments being increased by member banks. The limit for all single payments was raised from £10,000 to £100,000 in September 2010, though many member banks retain their own (much lower) limits.

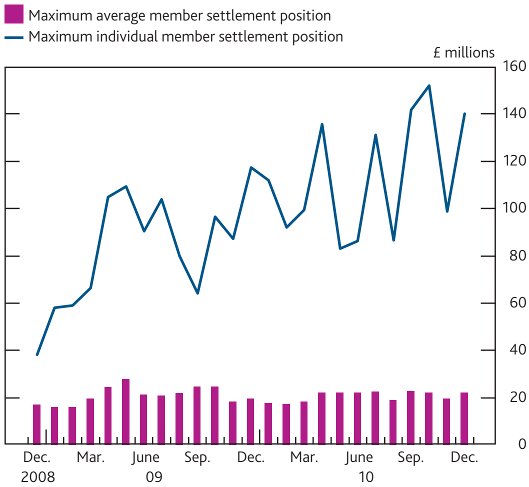
Chart 9 Monthly aggregate volumes and values in Faster Payments Service



Source: UK Payments Administration Ltd.

Beyond the core membership, there has, to date, been limited take up of other services available through FPS such as Direct Corporate Access. This is due in part to the gradual and cautious rollout of FPS services by banks. These factors contribute to the relatively modest size of settlement exposures (**Chart 10**). These exposures are currently well within the Net Sender Caps, used to limit the amount of settlement risk individual members can bring the system by limiting net debit positions under the Liquidity and Loss Share Agreement (LLSA).(2)

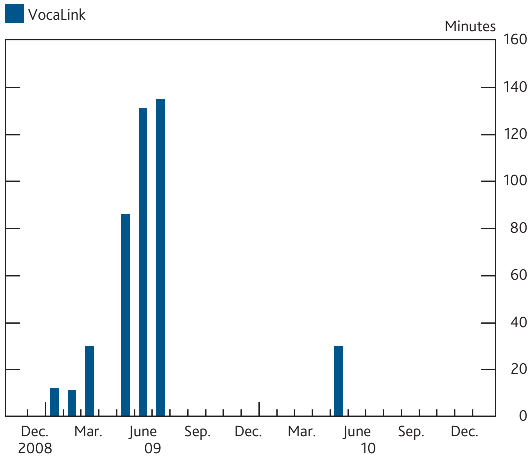
Chart 10 Monthly maximum settlement positions in Faster Payments Service



Source: UK Payments Administration Ltd.

To date, the Central Infrastructure for processing has shown itself to be resilient, with 100% availability and very few delays to settlement since mid-2009 (**Chart 11**).

Chart 11 Cumulative monthly delays for the three daily settlement cycles in Faster Payments Service



Sources: UK Payments Administration Ltd and Bank of England.

The arrangements for FPS have been strengthened since the publication of the previous *Oversight Report*. The total amount of collateral pledged by members under the LLSA has increased; it now covers 100% of the largest single Net Sender Cap. FPS has also been designated under the Settlement Finality Regulations, providing greater assurance over the legal status of transactions in the event of insolvency.

As volumes continue to rise, FPS needs to review and test its procedures and arrangements regularly to ensure that they remain fit for purpose given the increased operational, financial

(1) Settlement times are 7:15am, 1:00pm and 3:45pm.
(2) The LLSA is the agreement covering default arrangements in FPS in the event of a member defaulting or otherwise unable to settle.

and other risks associated with growth. FPS needs to satisfy itself of the ability of the Central Infrastructure and members' own systems to handle increased volumes particularly at 'peak' times; for example, during overnight Standing Order runs, or the first settlement after weekends which has historically been larger in volume and value than other settlements. While the Central Infrastructure has shown itself to be reliable to date, it is important to ensure the robustness of design and regularity of testing are maintained at scheme, service provider and member level.

Growth in FPS's operational activity needs to be supported by a comprehensive strategy and testing programme for contingency arrangements. FPS has introduced a programme of business continuity testing and the Bank will continue to monitor the adequacy and effectiveness of testing plans and the results of completed tests. Out of 'normal' hours and cross-scheme testing would also be useful. There have been a number of member level operational outages in 2010; the Bank expects FPS to monitor and challenge member performance robustly.

FPS is operated by CHAPSCo, which is also the operator of CHAPS. As noted above, CHAPSCo has shared management with Bacs since February 2010 and is currently reviewing those arrangements.

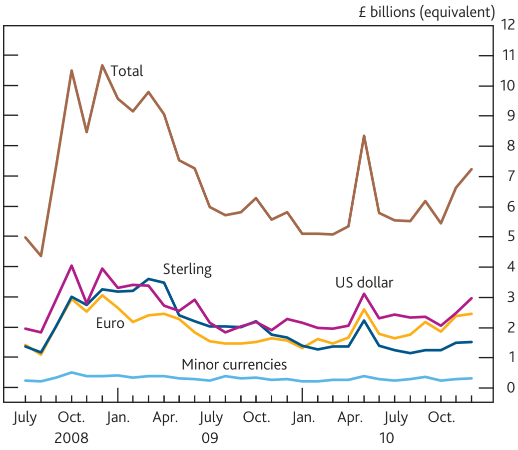
2.5 LCH.Clearnet Ltd

LCH.Clearnet Ltd (LCH) is the main CCP in the United Kingdom, clearing a wide range of both exchange-traded and over-the-counter (OTC) markets. It is incorporated as a private limited company, and is regulated by the FSA as a Recognised Clearing House under FSMA 2000. The Bank oversees LCH's operation of its embedded payment arrangements, the Protected Payments System (PPS).[1] This consists of a network of commercial banks that facilitates the transfer of funds between LCH and its members.

Chart 12 shows the average daily value of payments made through the UK PPS. There are currently twelve members of the UK PPS. As a CCP, LCH collects initial margin to cover an estimate of potential future losses in managing a default in all but extreme market conditions. While values transferred across the UK PPS have on average been lower than those seen in the Autumn of 2008, there was an increase in flows in May 2010 and late 2010 due to heightened market volatility related to European sovereign debt concerns.

Since the previous *Oversight Report*, LCH has introduced a number of measures to improve the robustness of the embedded payments arrangements. For example, it has introduced a new procedure increasing the transparency of late pay-ins by UK PPS banks in its PPS Forum.

Chart 12 Monthly average of daily gross transfers over the UK PPS, by currency and aggregate[a]



Sources: LCH.Clearnet Ltd and Bank calculations.

(a) Protected Payment System.

LCH strengthened the governance of its PPS arrangements further by introducing a high-level PPS Working Group which complements the PPS Forum. The PPS Working Group recently reviewed the processes in place to reduce LCH's intraday counterparty credit exposures to the PPS banks. Counterparty credit exposures arise in the period between PPS banks agreeing to meet cash margin calls on behalf of members and the actual transfer of funds to LCH's concentration banks. Under the terms of the UK PPS Agreement, PPS banks have two hours to make this transfer. While the vast majority of PPS banks meet this transfer time, prompt movement of margin payments can reduce this source of credit risk. LCH needs to work with both groups to continue to improve its PPS arrangements.

For sterling and euro, funds are concentrated intraday at the Bank of England. However, LCH uses commercial banks for concentration of US dollars and other currencies, exposing LCH to intraday credit risk.

LCH uses uncommitted facilities from commercial banks to meet intraday liquidity needs. LCH needs to assess how to improve its resilience to liquidity risk by changing payment schedules, arranging committed facilities and ensuring that the arrangements for investing margin take account of intraday payment needs.

Drawing these issues together, LCH needs to consider how it could redesign its payment arrangements to eliminate or strictly limit the credit and liquidity risks present in its current arrangements. In the meantime, the Bank has asked LCH to make available material that enables members, PPS banks and other stakeholders to gain an understanding of the risks they incur from participating in LCH's embedded payment arrangements.

(1) The PPS consists of two systems: the UK PPS and the US PPS. The US PPS is not covered in this *Oversight Report*, except where explicitly mentioned.

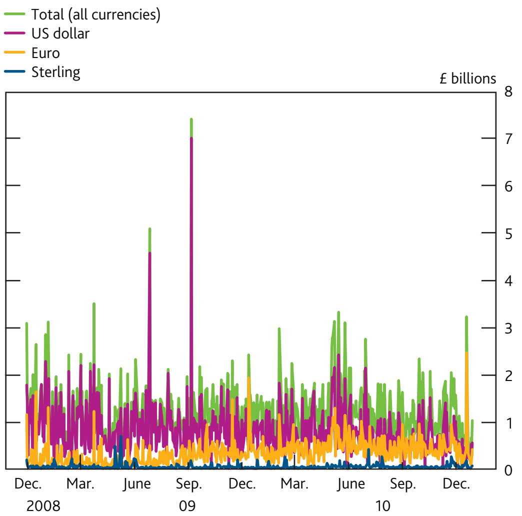
In May 2010, NYSE Euronext Liffe announced that it intends to establish its own CCPs in 2012 to clear its markets that are currently cleared by LCH.Clearnet SA and LCH.Clearnet Ltd. This has the potential to reduce flows across the PPS. At the same time LCH is expanding into new markets: for instance, it plans to launch foreign exchange options clearing in late 2011, which has the potential to increase flows across the PPS. In order to support these developments, LCH is establishing US dollar payment arrangements in Asia, using a commercial bank as part of its arrangements. The Bank will monitor the risks associated with changes to LCH's payment arrangements as its business evolves and will seek mitigating actions as necessary.

2.6 ICE Clear Europe Ltd

ICE Clear Europe Ltd (ICE Clear Europe) is a CCP that clears energy derivatives and credit default swap (CDS) contracts. It is incorporated in the United Kingdom as a private limited company wholly owned by ICE Inc., and is regulated by the FSA as a Recognised Clearing House under FSMA 2000. It began clearing in November 2008. In order to collect cash margin, default fund contributions, cash settlement amounts and other payments, it operates an embedded payment system, the Assured Payment System (APS). The APS consists of a network of seven commercial banks that facilitates the transfer of funds between ICE Clear Europe and its members.

Chart 13 shows the daily value of payments made through the APS since operations began in November 2008. At present, CDS contracts are novated on a weekly basis, which leads to the APS processing large values of euro payments each Friday.(1) ICE Clear Europe intends to start novating CDS trades on a daily basis from the first quarter of 2011, which has the potential to reduce the peak daily value of euro payment flows across the APS.

Chart 13 Daily gross transfers over the APS, by currency and aggregate(a)



Sources: ICE Clear Europe and Bank calculations.

(a) Assured Payment System.

The Bank commenced overseeing ICE Clear Europe following its recognition by HM Treasury in February 2010.

Under its Rules and Procedures, members must ensure that cash payments called by ICE Clear Europe before 8.00am have been transferred onto ICE Clear Europe's accounts at the APS bank by 9.00am. However, ICE Clear Europe does not currently set an intraday deadline for transferring funds to its commercial concentration bank. The earlier in the day that funds are received, the sooner they can be invested on a secured basis, limiting ICE Clear Europe's credit exposures to the commercial banks participating in the APS. ICE Clear Europe needs to ensure it has procedures in place for APS banks and the concentration bank to process payments in a timely way, thus minimising the CCP's intraday credit and liquidity risk.

As part of its consideration of possible ways of reducing counterparty credit exposures in the current design of the APS, ICE Clear Europe is exploring ways for enabling transfers between ICE Clear Europe and its members to be made in central bank money.

In addition to its own liquidity management arrangements, ICE Clear Europe has access to liquidity facilities provided by commercial banks to support its payment arrangements.

ICE Clear Europe also needs to explain to members, APS banks and other interested stakeholders the credit and liquidity risks in ICE Clear Europe's current payment arrangements. To aid transparency, ICE Clear Europe is intending to publish the criteria for becoming an APS bank. By publishing non-discriminatory and transparent criteria, other banks may be encouraged to become APS banks, thus reducing the dependence on the relatively small number of banks currently participating in the APS.

At present, APS banks do not have a dedicated forum to discuss issues arising from the current set-up of the APS. ICE Clear Europe needs to demonstrate how it ensures appropriate governance of issues affecting the APS, including the means of holding discussions and taking actions, and to implement new arrangements if required.

ICE Clear Europe provides central counterparty clearing to a number of OTC markets, including energy and corporate CDS markets. A number of other CCPs either clear or are due to

(1) While members have the option of providing cash cover for margin in sterling, euro or US dollar, most tend to provide cash cover in the currency of the underlying contract, which is euro for European corporate and index CDS products cleared by ICE Clear Europe Ltd.

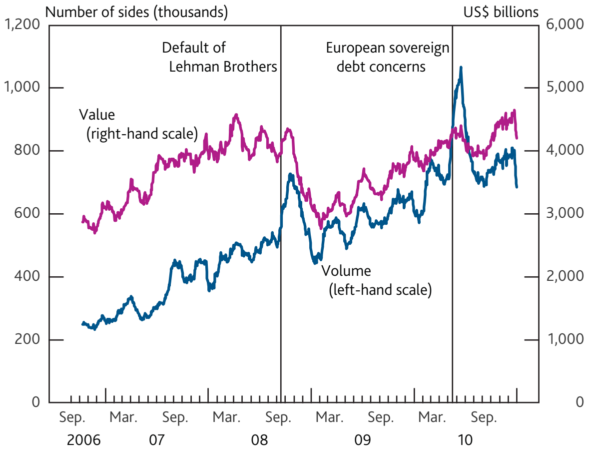
begin clearing these markets, which could affect the value of contracts cleared by ICE Clear Europe and hence the flows across the APS. ICE Clear Europe plans to expand into new markets over time, for example by clearing sovereign CDS. The Bank will monitor these developments and how they affect flows across the APS.

2.7 Continuous Linked Settlement (CLS)

CLS was introduced in 2002 to reduce principal (Herstatt) risk in the settlement of foreign exchange (FX) transactions. It is a payment-vs-payment (PvP) settlement service available across 17 currencies, and also provides non-PvP settlement of certain credit derivative and FX non-deliverable forward trades. CLS Bank International (CLS Bank), which is based in New York, provides the service. The US Federal Reserve is the supervisor and lead overseer of CLS Bank. It also chairs the CLS Oversight Committee (OC), in which the Bank participates along with other central banks.(1) As required by Federal Reserve policy, CLS published a self assessment against the CPSS Core Principles (the Bank's Principles I-X) in December 2009.(2) CLS assesses itself to observe all ten Core Principles.

Chart 14 shows that CLS has seen an increase in the volumes of trades that it settles, with particular peaks around times of market turbulence. The value settled by CLS fell considerably after Autumn 2008, but has since returned to mid-2008 levels.

Chart 14 Daily volumes and values settled by CLS(a)(b)



Source: CLS Bank International.

(a) Volume figures report the number of instructions before splitting.
(b) 30-day moving average.

Five banks have joined CLS as settlement members since the previous *Oversight Report*, although mergers between other members have meant that there are now 62 members, including 60 settlement members. The number of indirect 'third party' participants has doubled since the previous *Oversight Report*, with over 10,000 registered as at December 2010. CLS introduced a new service, CLS Aggregation, in January 2010. This allows members to compress, without netting, the large number of low value trades produced by algorithmic trading, retail aggregation, and prime brokerage.

Elevated volumes have caused some pressure on members' and CLS's capacity for submission and receipt of trades (particularly during intraday peak trading hours), but settlement has continued successfully. CLS has been working alongside members to increase both its capacity and theirs; and increased use of CLS Aggregation could also help mitigate these capacity constraints. CLS also experienced a database issue on 15 July 2010 which prevented processing of around 4% of members' input that day. These trades had to be re-submitted, and some transactions ended up being settled outside CLS. CLS's operational availability has nevertheless been high since 2008. CLS continues to work to address capacity constraints across its systems and has engaged its members through a forum to identify and understand these issues and develop potential solutions and best practices.

CLS's single daily settlement session is currently in effect unable to settle same day transactions. Such transactions are settled outside CLS, and continue to incur principal risk. These same-day transactions include the 'out' legs of In/Out Swaps (IOS), which are a liquidity management tool used by many settlement members to reduce their early morning(3) pay-ins to CLS. However, settlement of the 'out' legs re-introduces settlement risk on around US$130 billion of transactions per day. CLS is working with market participants on an additional settlement session for same day trades (including IOS 'out' legs), initially US dollars and Canadian dollars.

An additional way to reduce settlement risk would be for CLS to expand the number of currencies it settles. CLS is developing a Currency Programme that seeks to achieve this while managing any additional risks that result from the expansion of services.

Funding to and from CLS is made across RTGS systems (CHAPS for sterling) in all 17 currencies, but most CLS settlement members only have direct access to a small number of RTGS systems. Hence, they use nostros (correspondent banks) to make and receive their pay-ins in currencies where they do not have direct access. The failure of a nostro which acts for multiple CLS members could have a significant knock on impact for the CLS system. CLS continues to work with its participants to seek ways to mitigate this.

(1) For more information, see www.federalreserve.gov/paymentsystems/cls_protocol.htm.
(2) www.cls-group.com/About/Documents/CLS%20Bank%20-%20Core%20Principles%20Assessment.pdf.
(3) Central European Time.

CLS has been discussing with CCPs interested in clearing FX how to bring the benefits of CLS settlement to cleared trades, while considering any potential risks.

2.8 SWIFT

SWIFT provides secure messaging services to financial institutions and market infrastructures covering more than 9,500 users in over 200 countries. It also sets standards for payment and settlement messages, for back office IT systems of financial institutions around the world to communicate with one another. Although SWIFT is not a payment or settlement system itself, its services are important as it is used by financial market infrastructures which are important to the UK financial system.

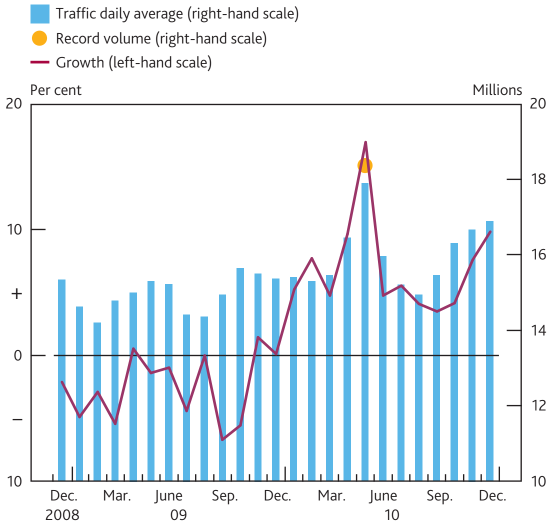
The Bank participates with other G10 central banks in the co-operative oversight of SWIFT. The overseers' objective is to seek assurance that SWIFT appropriately manages risks to its operations. The mechanics of SWIFT oversight have been enhanced by the implementation of the High Level Expectations (HLEs) framework, which defines standards specific to a messaging services provider.

SWIFT experienced record volumes in May 2010 (**Chart 15**), attributed to volatility in financial markets related to European sovereign debt concerns.

While SWIFT reported no incidents or capacity issues during this peak period (**Chart 16**), overseers continue to emphasise the importance of investment to improve resilience within key infrastructure services. SWIFT users must also ensure the resilience of their connections to SWIFT.

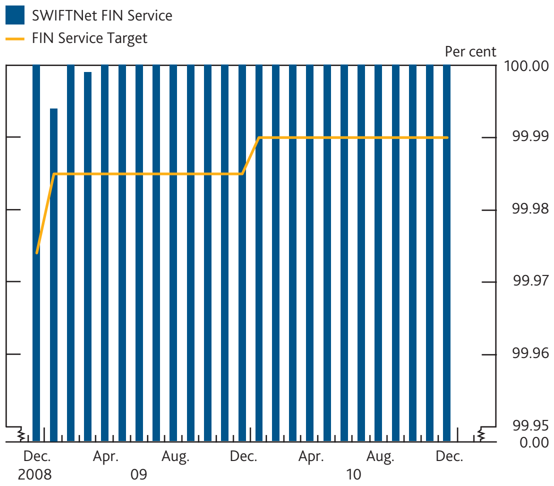
In January 2010, SWIFT introduced a Distributed Architecture (DA) which now organises SWIFT messaging into two zones, segregating global traffic into the European zone and Transatlantic zone. To achieve this SWIFT added another operating centre hosted on leased premises. SWIFT plans to replace the leased operating centre with a new operating centre in the second stage of the DA project.

Chart 15 Daily average traffic in SWIFT



Source: SWIFT.

Chart 16 SWIFT network availability



Source: SWIFT.

In 2009, SWIFT launched a structural cost reduction programme. Overseers have worked with SWIFT to ensure that efficiency gains are properly assessed against their impact on its infrastructure resilience.

Box 3 Interdependencies between recognised interbank payment systems

As discussed in Chapter 1, payment systems can act as potential sources of disruption as well as channels of contagion for financial instability. Within individual systems, a range of mitigants have been developed over the past 20 years or so to limit the impact of disruption from operational failures or member defaults. These include: the elimination of counterparty risk through real time gross settlement; PvP in foreign currency settlement and DvP in securities settlement systems; collateralised default arrangements for net settlement systems such as Bacs and FPS; and increased clearing of transactions through CCPs. These developments helped to ensure that, throughout the recent crisis, payment systems generally remained robust.(1)

However, the level of interconnectedness across the financial system has increased over the same period, including links between payment and settlement systems.(2) These links can include system-based interdependencies, environmental interdependencies, and institution-based interdependencies. Because each of these can generate risks, the Bank has introduced a new Principle on this (Principle XII).

Interdependencies in the recognised payment systems

Figure A shows a simplified map of connections between the seven recognised payment systems and their supporting service providers. As can be seen, RTGS is at the heart of the UK's financial infrastructure. The securities settlement system, CREST, also has a key role. All of the other recognised payment systems have links to one or both of RTGS or CREST (systems-based interdependencies). The multi-currency activities of some payment systems mean that there can also be dependencies on overseas RTGS systems, such as TARGET2 for euro payments and Fedwire for US dollar payments. In the case of CLS, the connections extend to RTGS or other large value payment systems for 17 currencies.(3)

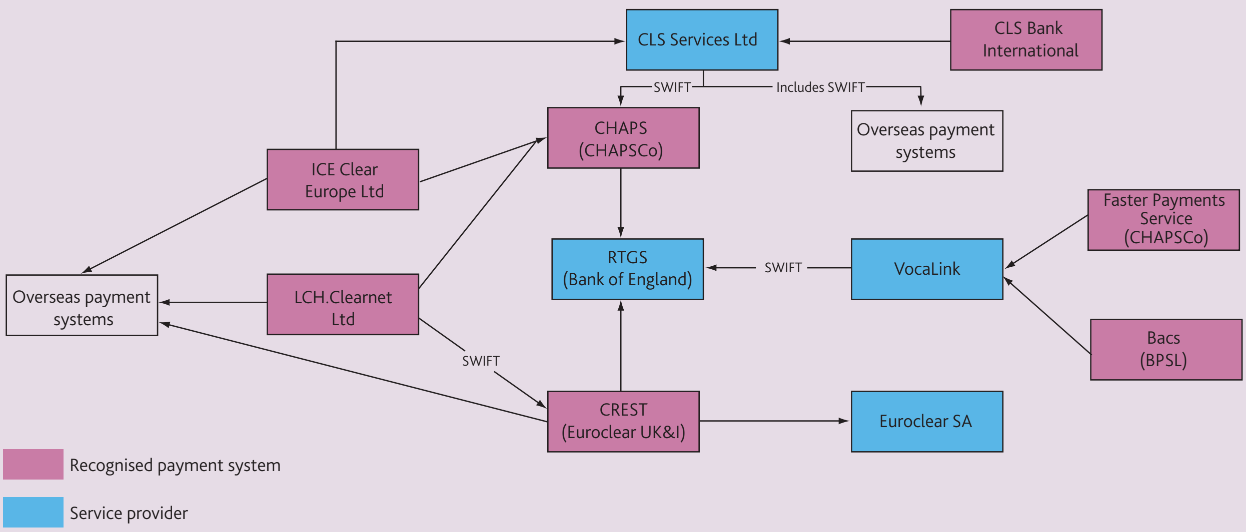
Figure A also shows instances of environmental interdependencies. For example, while SWIFT is not a payment system, it is nevertheless an important component of the financial infrastructure, both in the United Kingdom and overseas. In retail payments there are interdependencies in relation to service providers with both Faster Payments and Bacs, as well as other UK and overseas retail payment systems, dependent on VocaLink for processing services.

Due to the highly tiered nature of UK payment systems memberships, many banks and building societies are reliant on a relatively small number of settlement banks; this is discussed further in Box 1 on tiering above.

Common membership of different systems can also give rise to institution-based interdependencies. There is a high degree of common membership within the seven recognised interbank payment systems. Five banks are members of six of the systems overseen by the Bank, with a further seven banks being members of at least four systems. A financial or operational difficulty for such institutions could affect the functioning of a number of the recognised payment systems.

The Bank recognises that some of these interdependencies may currently lie outside the immediate control of individual payment systems. However, it is important for each system to identify and understand the risks that it bears from, and poses to, other infrastructures. With a better understanding of the risks, a payment system can then identify where it should implement controls to manage risks. This may include

Figure A Interdependencies in the UK recognised payment systems



co-ordination with other systems, for example, joint business continuity testing.

In November 2010, the Payments Council (PC) organised a cross-scheme exercise, supported by the Bank, HM Treasury and FSA. The exercise, in which over 60 organisations participated, involved a scenario of significant disruption to retail payments arising from a hypothetical, simultaneous outage of a number of payment systems including Bacs and the Faster Payments Service. The Bank welcomes such exercises and will discuss the exercise findings with the PC and other relevant participants.

A fuller explanation of the points above will be found in the Bank's forthcoming guidance document.

(1) For example, see Haldane, A G (July 2009) 'Small lessons from a big crisis', www.bankofengland.co.uk/publications/speeches/2009/speech397.pdf.
(2) Haldane, A G (April 2009) 'Rethinking the financial network', www.bankofengland.co.uk/publications/speeches/2009/speech386.pdf.
(3) CLS is a member of all of the RTGS systems for the 17 currencies except Canadian dollars, where the Bank of Canada acts as its nostro to make and receive payments.

The Bank of England's Principles for oversight under the Banking Act 2009

Principle I. The system should have a well-founded legal basis under all relevant jurisdictions.

Principle 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.

Principle 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.

Principle 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.

Principle 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.

Principle 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.

Principle VII. The system should ensure a high degree of security and operational reliability and should have contingency arrangements for timely completion of daily processing.

Principle VIII. The system should provide a means of making payments which is practical for its users and efficient for the economy.

Principle IX. The system should have objective and publicly disclosed criteria for participation, which permit fair and open access.

Principle X. The system's governance arrangements should be effective, accountable and transparent.

Principle XI. The system should manage its business risks so that its users can rely on continuity of its services.

Principle XII. The system should regularly review the risks it bears from, and poses to, other infrastructures as a result of interdependencies, and implement controls adequate to manage those risks.

Principle XIII. The system should understand and manage risks that are brought to the system as a result of participants' relationships with indirect participants.

Principle XIV. The system should manage its outsourced relationships prudently, ensuring that contractual and risk management arrangements are clear, appropriate and robust.

Glossary of terms

Business risk
The risk that the payment system or any of its components — for example, an infrastructure provider serving it — cannot be maintained as a going concern in the face of adverse financial shocks.

Central counterparty
An entity that interposes itself between counterparties to contracts traded in one or more financial markets, becoming the buyer to every seller and the seller to every buyer.

Core Principles
The ten Core Principles for Systemically Important Payment Systems provide a set of minimum standards for risk management in systemically important payment systems.

Deferred net settlement
Under deferred net settlement, a payment system releases details of payments to the receiving bank prior to interbank settlement. Settlement is achieved when (bilateral or multilateral) net obligations are posted to accounts at the settlement agent, and so participants only need to generate liquidity equal to their net obligations.

Designation
Designation under the SFD/FMIRs provides additional assurance of the enforceability of a system's default arrangements.

Exposure
The maximum loss that might be incurred if assets or off balance sheet claims have to be written off, or if a counterparty (or group of connected counterparties) fails to meet its financial obligations).

Financial Markets and Insolvency (Settlement Finality) Regulations
These Regulations — 1999 (SI 1999/2979) (FMIRs) — implement into UK law the EU Settlement Finality Directive.

Governance
Corporate governance is the method by which an organisation is directed, administered or controlled. The corporate governance structure specifies the distribution of rights and responsibilities of the board, managers, any shareholders and other stakeholders, and spells out the rules and procedures for managing decisions on organisational affairs.

Liquidity risk
The risk that a counterparty or payment system participant will not settle an obligation for full value when due, but may be able to at some unspecified time thereafter.

Operational risk
The risk that a system operator or core infrastructure provider to the system is operationally unable to process or settle payments as intended.

Payment Services Directive
The EU Directive on Payment Services (Directive 2007/64/EC) which aims to foster a single market in retail payment services across the European Economic Area; implemented into UK law by the PSRs.

Payment Services Regulations
These Regulations — (SI 2009/209) (PSRs) — implement into UK law the EU Payment Services Directive.

Principles
These are fourteen Principles published by the Bank under section 188 of the Banking Act 2009, to which the operators of recognised interbank payments systems are to have regard.

Recognition
The means by which HM Treasury designates interbank payment systems that are to be subject to oversight by the Bank under Part 5 of the Banking Act 2009.

Service providers
Entities that provide technology, communication or other services to the operators of payment systems.

Settlement Finality Directive
The EU Directive on Settlement Finality in Payment and Securities Settlement Systems (Directive 98/26/EC); implemented into UK law by the FMIRs.

Settlement risk
The risk that a participant in a system cannot or does not meet its financial obligations when, under the rules of the system, they fall due; or that another institution that facilitates the settlement of those obligations — such as the settlement agent — becomes insolvent.

Abbreviations

APS – Assured Payment System
CBM – Central Bank Money
CCP – Central counterparty
CDS – Credit Default Swap
CHAPS – Clearing House Automated Payment System
CHAPSCo – CHAPS Clearing Company Ltd
CLS – Continuous Linked Settlement
CPSS – Committee on Payment and Settlement Systems
CSD – Central Securities Depository
DBV – Delivery by Value
DNS – Deferred net settlement
DvP – Delivery versus Payment
ECB – European Central Bank
ESA – Euroclear SA/NV
EUI – Euroclear UK & Ireland Ltd
FCA – Financial Conduct Authority
FMIRs – Financial Markets and Insolvency (Settlement Finality) Regulations
FPS – Faster Payments Service
FSA – Financial Services Authority
FSMA – Financial Services & Markets Act 2000
FX – Foreign Exchange
HLC – (ESA) High Level Committee
ICE – InterContinentalExchange
IOS – In/out swaps
IOSCO – International Organization of Securities Commissions
LFCA – Liquidity Funding and Collateralisation Agreement
LLSA – Liquidity and Loss Share Agreement
NBB – National Bank of Belgium
NYSE – New York Stock Exchange
OC – (CLS) Oversight Committee
OTC – Over-the-counter
PC – Payments Council
PPS – Protected Payments System
PSRs – Payment Services Regulations
PvP – Payment vs Payment
RTGS – Real-Time Gross Settlement
SBC – Settlement Bank Committee
SFD – Settlement Finality Directive
SLA – Service Level Agreement
SWIFT – Society for Worldwide Interbank Financial Telecommunication
TARGET2 – Trans-European Automated Real-Time Gross Settlement Express Transfer 2
TC – (ESA) Technical Committee

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