

Annexes to Payment Systems Oversight Report 2008

Detailed assessments of payment systems

April 2009 | Issue No. 5



BANK OF ENGLAND



BANK OF ENGLAND

Annexes to Payment Systems Oversight Report 2008

Detailed assessments of payment systems

April 2009 | Issue No. 5

The Committee on Payment and Settlement Systems' Core Principles for Systemically Important Payment Systems set out the types and level of risk mitigation that should be exhibited by a safe and efficient payment system. They provide a benchmark for central banks in their oversight function, aiding the identification of relative areas of strength and weakness in the design or operation of particular payment systems. These Annexes contain the Bank's (updated) Core Principles assessments of the main UK payment systems.

The following seven annexes cover:

Annex A CHAPS	3
Annex B CREST	8
Annex C LCH.Clearnet Ltd	13
Annex D Bacs	18
Annex E Faster Payments Service	23
Annex F The Cheque and Credit Clearings	28
Annex G LINK	34
Annex H UK Maestro	38

Annex A CHAPS

CHAPS is the United Kingdom's high-value payment system, providing members with real-time gross settlement (RTGS) of credit transfers. CHAPS now consists of only one system, CHAPS Sterling, CHAPS Euro having been decommissioned in May 2008, following the launch of TARGET2.

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

The *CHAPS Rules* are clear and comprehensive and appear to provide an adequate contractual basis for the system's operation. CHAPS Sterling is designated under the Financial Markets and Insolvency (Settlement Finality) Regulations 1999 (FMIRs), which implement the EU Settlement Finality Directive (SFD) in the United Kingdom. Taking into account these regulations and the general principles of English law, the Bank judges that the legal basis for the enforcement of rules governing irrevocability of instructions, finality of settlement, default arrangements, and collateral security is robust. Previously, however, payments made outside the SWIFT network in contingency situations, for example by fax or enquiry link, were not captured by the SFD. Changes have now been made to the *CHAPS Rules* to ensure that these payments now fall within the SFD and these have been approved by the CHAPS Legal Committee and the CHAPSCo Board.

CHAPS members' relationships with the Bank of England, as provider of settlement accounts, are governed by contracts (the *RTGS Terms and Conditions* and the *Master Repurchase Agreement*).

As a condition of continued CHAPS membership, members are obliged to comply with the technical and operational requirements of the CHAPS system. However, CHAPS members do not sign formal contracts or acknowledgements committing themselves to abide by the *CHAPS Rules* and decisions of the CHAPSCo Board. To date, the lack of a formal contract or acknowledgement by members has not given rise to any risk concerns — relying on the basic principle of English law that if a member enters payments into the system, that member can be regarded as having accepted the rules of the system by conduct. The decisions to introduce such contracts for Bacs and the C&CC suggest that the situation for CHAPS should also be reviewed, although there has been no progress here in 2008.

Although the Bank continues to note the case for CHAPSCo and its members establishing formal contracts, it nevertheless **assesses CHAPS to observe Core Principle I**. This assessment is unchanged from last year.

CP 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.

The CHAPS system is in principle a simple one, and the risks associated with it should be readily identifiable by members. The *CHAPS Rules* set out high-level rights and duties of members. The respective responsibilities of the Bank as operator and settlement agent, CHAPSCo as the payment scheme organisation, and the members, are set out in a Memorandum of Understanding (MoU).

All of the risk management features in CHAPS are clearly and comprehensively explained in the *CHAPS Rules* and supporting procedural documentation. A hierarchy is in place comprising rules, high-level procedures and detailed operational manuals. Together, these documents cover all aspects of CHAPS operation and design, both under normal running and in contingency situations.

The settlement process does not give rise to credit risk between settlement members other than in bypass mode. Procedures for processing and settlement are covered by the *CHAPS Procedures* and the *RTGS Reference Manual*. The rules relating to the irrevocability and finality of payments are clear. The *Procedures* and the *Reference Manual* also explain the controls and measures designed to minimise liquidity risk. These include throughput guidelines, operation of 'circles' processing to minimise the risk of gridlock, and the transfer of sterling liquidity in contingency situations.

Formal responsibility for determining the *Rules* rests with the CHAPSCo Board. The Board has delegated responsibility to the CHAPS Legal Committee for ensuring that the *Rules* remain robust and up-to-date, and for considering proposed changes.

The Bank assesses CHAPS to observe Core Principle II. This assessment is unchanged from last year.

CP 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.

In an RTGS system such as CHAPS, the settlement process does not give rise to the credit risk that can be involved in deferred settlement. Domestic payments are both irrevocable and final at the point at which the relevant member's settlement account is debited.

The main form of financial risk associated with RTGS is liquidity risk. CHAPS payments cannot be made unless the paying bank has sufficient funds (or liquidity) available on its settlement account with the Bank. If there were insufficient liquidity in the system as a whole (or it was not distributed sufficiently well) to permit a regular flow of payments, the result could be gridlock. Liquidity pressures could also arise as a result of time-critical payments, such as those associated with CLS pay-ins. However, there is no evidence of CHAPS members experiencing liquidity management difficulties in meeting CLS pay-in deadlines.

To reduce liquidity risk, the Bank provides intraday liquidity to all CHAPS Sterling members, limited only by the availability of eligible collateral. Additionally, members can use balances held with the Bank as part of the Reserves Scheme to fund payments. To aid liquidity management, all banks have real-time information on balances and the status of payment messages, with additional real-time monitoring by Bank of England operators. Both central and local schedulers enable members to manage the order in which payments settle, though the majority of members use local scheduling controls.

The CHAPS throughput guidelines remained the same in 2008 as 2007. The Bank and CHAPSCo constantly monitor members where breaches have occurred. However, as detailed in Section 2.1, throughput decreased markedly in October 2008 at the height of the financial turmoil, although it returned to more typical levels soon after.

An additional liquidity-saving feature of CHAPS enables members to submit CHAPS payment messages to the RTGS processor without necessarily posting sufficient liquidity for the payments to settle. Instead, a member can queue outgoing payment messages within the RTGS processor until liquidity becomes available from, for example, incoming payments. 'Circles' processing — whereby offsetting payments are settled on a 'simultaneous gross' basis — can be used to clear any build-up of queues.

In extreme scenarios, if there is a risk that liquidity might be drained from the system because a member is unable to send

but can still receive payments, the member can resort to two main contingency procedures: faxing of significant payments or use of the Settlement Bank Liquidity Scheme (SBLS). This enables the stricken member to recycle liquidity back into the system and in turn ensure that members who are still operational are content to carry on sending payments to that member. However, the incident on 3 January 2008, where one member had an operational outage for a large part of the day, demonstrated the importance of being able to make contingency payments in such situations, and ensuring familiarity with the procedures through regular testing.

Examination of the events on 3 January 2008 showed that, even if it is operated properly, the values which can be lent bilaterally between members in the SBLS are too small in relation to the potential daily flows in CHAPS, although there is a mechanism to increase these limits on the day. These limits should either be reviewed or it should be recognised that the SBLS, in its current form, is not capable of achieving the purpose for which it was designed and needs redesigning or replacing.

In general, however, Bank analysis continues to show that system participants have ample liquidity to cope with temporary operational difficulties affecting even the largest members; the problems on 3 January 2008 did not have a great impact on liquidity in CHAPS overall. CHAPS remains a liquidity-rich system.

The Bank still assesses CHAPS to observe Core Principle III.

However, in the light of events of the past year, the existing contingency procedures, in particular the SBLS, should be revisited and more realistic tests, including desktop exercises, should be adopted.

CP 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.

A settlement bank receiving a payment instruction receives value from the paying bank simultaneously and with finality. The designation of CHAPS under the UK settlement finality regulations should prevent successful legal challenge to the finality of settlement in the event of member insolvency.

The Bank assesses CHAPS to observe Core Principle IV.

This assessment is unchanged from last year.

CP 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.

This Core Principle is not applicable to CHAPS in normal operational mode, as settlement of payments is conducted

on a gross rather than net basis. Netting would apply only if CHAPS's first and second levels of contingency proved inadequate and bypass mode were to be invoked. This has never been necessary.

In bypass mode there are no arrangements to ensure that settlement of net obligations could be completed in the event of a settlement member being unable to provide the necessary funds. Since 2003, all commercial bank settlement members have had in place 'net sender caps', limiting multilateral net obligations to the amount of unused intraday liquidity that the member had posted with the Bank (if this information is available via the RTGS contingency database) or £1 billion (if this information is not available).

Given the very low likelihood of a member being unable to meet its settlement obligations coincident with operation of bypass mode, it is important to ensure mitigants for such settlement risk are proportionate. The Bank has considered the range of mitigants available to further reduce settlement risk in bypass mode. That work has identified increasing the number of settlement cycles from a single end-of-day cycle to multiple cycles as potentially delivering the greatest risk-reducing benefit in a cost-effective manner. CHAPSCo has agreed with this proposal and has incorporated multiple settlement cycles into its contingency procedures. However, the first test of these on 5 July 2008 showed that many members had difficulties in fully implementing them. The Bank expects these new procedures to be retested on a regular basis until members are familiar with the actions they need to undertake. At the moment, this suggests that tests should occur at a greater frequency than annually.

CP 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.

Settlement between CHAPS members takes place by transfers of claims on the Bank of England. **The Bank assesses CHAPS to observe Core Principle VI.** This assessment is unchanged from last year.

However, previous *Oversight Reports* have noted that only members of CHAPS enjoy the risk-reduction benefits of settlement in central bank money, which CHAPS's highly tiered membership structure restricts to a limited number of banks.

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

CHAPS's security controls and measures appear to be effective. The system's record of operational availability is

good, notwithstanding the double firewall failure that occurred on 7 July 2008. Contingency procedures are tested regularly and external audits of both CHAPS's control framework and of the Bank's operations take place every year.

CHAPS's controls are set out in documents such as the *Security Policy* and the *Security Code of Conduct*. The former is a high-level policy description covering end-to-end clearing, which is reviewed annually (or additionally when major changes occur) and approved by the CHAPSCo Board. CHAPS's Internal Audit periodically reviews how the policy is being maintained. The *Security Code of Conduct* implements the CHAPS *Security Policy* at a lower level and specifies a range of security controls that CHAPS members and suppliers are expected to have in place. Members are required to self-certify compliance with the Code annually.

Operation of the core RTGS processing infrastructure is outsourced by CHAPSCo to the Bank. The MoU (see Core Principle II) lists a wide range of performance measures for the Bank, including ensuring that settlement facilities are available on average for 99.95% of the operating day over the course of each month. RTGS met this requirement in ten out of the twelve months in 2008.

CHAPSCo and the Bank's operational area have processes in place to monitor, review and follow-up on operational incidents that affect RTGS. These processes have proved effective in ensuring that technical errors and problems are dealt with and rectified quickly. However, it is also important that the wider aspects of incidents are considered and their potential implications fully understood.

Members also play a key role in the smooth operation of the system and CHAPSCo places high importance on the resilience and robustness of members' feeder systems and interfaces with CHAPS. The *Procedures* set out various guidelines for the service levels expected of members, and there are arrangements to enable CHAPSCo to monitor and assess members' performance. Under the guidelines, among other requirements, members are expected to minimise requests for 'cut-off extensions' of the daily CHAPS timetable. Too many requests for extensions (or other breaches in Service Level Code criteria) can result in a member being asked to appear before a so-called 'Star Chamber'. At the hearing, a member will be asked to set out the steps it is taking to restore its level of service to the expected level. Thereafter, CHAPSCo will liaise with the member and monitor implementation of remedial changes against an agreed plan.

CHAPS's business continuity, resiliency and recovery procedures are extensive and, through initiatives such as the Tripartite Resilience Benchmarking Project, which was repeated at the end of 2007, have been shown to be of a high standard. However, internationally, the benchmark for the

resilience of the most important parts of financial infrastructure has been rising. It is therefore appropriate to continue to review the adequacy of CHAPS's contingency arrangements and, if necessary, look for ways to strengthen them further. The testing of bypass mode, detailed above, is an example of this.

CHAPSCo continues to carry out a detailed set of contingency exercises together with the members of the systems, as detailed in Section 2.1. These include remote site working, fax testing and SWIFT 'cold start' tests. However, as discussed above, these should also be aimed at increasing the ability of members to communicate and act strategically in crises as well as improving operational arrangements.

The Bank assesses CHAPS to observe Core Principle VII.

This is unchanged from last year. However, the Bank encourages CHAPSCo and its membership to improve its contingency testing arrangements continually.

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

Although charges for customers wanting to use CHAPS for retail payments are typically high relative to the underlying tariffs (which, together with fees, cover the operating costs of CHAPS, including the services provided by the Bank), banks are free to compete in this market. Settlement member banks can also compete freely to attract third-party participants.

RTGS systems impose high liquidity demands on their direct participants, but the Bank provides collateralised intraday liquidity free of charge, and there is no evidence that members lack adequate collateral (in part because many current members must hold such assets to meet end-of-day regulatory liquidity requirements and are free to use them intraday in the payment system).

The Faster Payments Service (FPS) went live in May 2008. The new system is expected to take over 50% of CHAPS volumes over the next five years. This could potentially increase the average cost of making RTGS payments. However, the *value* of payments using the system should be largely unaffected, insofar as there is a subset of large-value payments which should continue to settle on a real-time basis because of their systemic characteristics. To ensure CHAPS remains a practical, economically attractive way for making these payments, CHAPSCo and the Bank will need to consider carefully their response to the cost implications of volumes migrating to FPS. One response may be to seek convergence of the RTGS and Faster Payments Service infrastructures. CHAPSCo has produced a paper outlining the first steps in this direction and the Bank welcomes this as a step towards improving the

interconnectivity between systems and the potential that they could substitute for each other if one of them is not operational.

The Bank assesses CHAPS to observe Core Principle VIII.

This assessment is unchanged from last year.

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

The Bank considers CHAPS access criteria to be objective and fair and welcomes the fact that both Danske and JPMorgan are due to join CHAPS over 2009. Access criteria are defined in the *Rules* and are available on the CHAPSCo website.

Membership is restricted to financial institutions that hold sterling settlement accounts at the Bank and have the ability to comply on a continuous basis with the technical and operational requirements of the CHAPS systems, as set out in the reference documents.

Where the Bank provides settlement services to a payment system, it will normally be prepared to provide a settlement account to any member of that system. Differences in facilities offered by the Bank (in particular the availability of intraday credit) are determined using objective, risk-based standards. The Bank's settlement account criteria are available on its website.⁽¹⁾

In 2005, the CHAPS entry fee for new members was reduced from £100,000 to £70,000 (prior to 2001, the fee was £1 million). The fee is justified by CHAPSCo as a contribution to the technical costs for the scheme company and existing members of adding new members to the system. The Bank continues to question, on the basis of the factors cited in previous *Oversight Reports*, the appropriateness of this fee and therefore continues to encourage CHAPSCo to review the basis on which it is set.

The Bank assesses CHAPS broadly to observe Core Principle IX. This assessment is unchanged from last year.

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

CHAPSCo has a clear governance structure, with the Board having ultimate responsibility for the management of the system. The Bank considers the Board to exercise effective control over the Company's executive.

(1) Bank of England (2002), *Bank of England Settlement Accounts*, available at www.bankofengland.co.uk/financialstability/role/risk_reduction/payment_systems_oversight/pdf/boesettleaccs021128.pdf.

The CHAPSCo Board is composed entirely of member settlement banks, which have both the incentives and tools to pursue the interests of the system and settlement members. Incentives for management to pursue the interests of the wider population of stakeholders are less clear, though the Bank provides one of the Board directors.

New governance arrangements for UK payment systems were introduced in 2007 with the creation of the Payments Council. CHAPSCo now has a contractual relationship with the Payments Council under which the scheme complies with directions given by the Council board in relation to, *inter alia*, strategic issues, innovation and integrity.

In May 2008, the Payments Council produced its National Payments Plan (NPP). The Bank welcomed the publication as a high-quality piece of analysis on which the Payments Council consulted widely. Wholesale payments were a smaller theme in the NPP than some retail areas, such as cheques, but nevertheless they were included as part of the strategic vision of the UK payments landscape. The Bank will look for the Payments Council to increase its focus on cross-system integrity issues in 2009, an area to which it feels the Council has devoted less attention than others. Nevertheless on the basis of the above **the Bank is content to change its assessment of Core Principle X from broadly observed to observed.**

Annex B CREST

CREST is the United Kingdom's securities settlement system, providing a Delivery versus Payment (DvP) settlement service for UK securities. The system is operated by Euroclear UK & Ireland Limited (EUI),⁽¹⁾ a wholly-owned subsidiary of Euroclear SA/NV (ESA). EUI is an approved operator under the Uncertificated Securities Regulations.

CREST has three payment systems:

- real-time gross settlement (RTGS) in central bank money in sterling;
- RTGS in central bank money in euro; and
- a bilateral net settlement arrangement for transactions settled in US dollars.

This assessment covers sterling and dollar settlement, differentiating between them as necessary.⁽²⁾ The Central Bank and Financial Services Authority of Ireland (CBFSAI) took over provision of central bank euro liquidity for the CREST Euro service from April 2008 (following the launch of TARGET2 in which the Bank is not participating as a provider of euro RTGS). The Bank, the FSA and the CBFSAI have entered into an MoU for co-operation as regards 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.

Payment systems are by their nature collaborative ventures. In conducting this assessment, a distinction is drawn between the systems and procedures operated by CREST, for which EUI is responsible, and the overall payment arrangements supporting (sterling) securities settlement, which are a collaboration between EUI, the Bank and the CREST settlement bank community.

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

CREST is designated under the Financial Markets and Insolvency (Settlement Finality) Regulations 1999 (FMIRs). This implements the EU Settlement Finality Directive (SFD) in the United Kingdom, so that the finality of both securities and payment transfers (including those effected through all three payment systems) is protected from legal challenge in the event of an insolvency.

On 15 September 2008 Lehman Brothers International (Europe) (Lehman Brothers) was placed in administration. In general the unwinding of Lehman Brothers' transactions was undertaken smoothly. However, the default raised some concerns among CREST users over default arrangements.⁽³⁾ A particular issue was the lack of market participant understanding of how default arrangements in CREST applied to over-the-counter (OTC) transactions awaiting settlement in CREST at the time of the default.⁽⁴⁾

There has also been substantial debate about the interpretation of the SFD within CREST's rules. EUI and the relevant authorities are currently examining issues related to default arrangements and processes. The Bank encourages EUI to consider what steps can be taken to assist market participant understanding of CREST's default arrangements and welcomes EUI's issuance of additional guidance on Rule 13 of the *CREST Rules*, clarifying the steps which EUI is likely to take in the event of the default of a member.

The protection provided by the UK FMIRs also extends to the CREST settlement banks' arrangements for taking collateral to secure their customers' debit caps. Lehman Brothers' default has highlighted the importance of settlement banks ensuring familiarity with these arrangements and maintaining up-to-date documentation. The Bank welcomes EUI's recent initiatives in educating users and settlement banks on floating charge processes.

There are bilateral and multilateral contractual arrangements between EUI, the Bank and the CREST settlement banks governing the operation and provision of the DvP payment arrangements in sterling (including the operation of settlement accounts at the Bank and the self-collateralising repo mechanism that may be used by CREST settlement banks to generate intraday liquidity from the Bank). These contracts are governed by English law. In the case of CREST settlement banks that are the branches of banks incorporated outside the European Economic Area, EUI has obtained legal opinions

(1) Formerly CRESTCo Limited.

(2) While the assessment focuses on the payment arrangements between the thirteen CREST settlement banks, these settlement bank arrangements are underpinned by payments between over 45,000 CREST members across Cash Memorandum Accounts (CMAs) held with settlement bank members. Payment obligations arise between settlement bank members when a trade takes place between members that hold CMAs at different settlement banks.

(3) The term 'default arrangements' in this context does not refer to default rules enforced by Recognised Clearing Houses which are party to market contracts or by Recognised Investment Exchanges.

(4) See Section 3.1 for a fuller discussion of the Lehman Brothers' default.

confirming that these banks have the authority to commit themselves to abide by the relevant rules, and that the relevant home-country legal systems of the parent banks would not interfere with those banks' ability to fulfil their obligations.

The Bank continues to assess the CREST sterling payment arrangements to observe Core Principle I.

The US dollar payment arrangements are currently supported by end-of-day settlement of bilateral net obligations between pairs of settlement banks. The arrangements for such settlement are part of the overall relationship that each settlement bank has with its US dollar correspondent in the United States, and fall outside the scope of EUI's responsibility. Although the US dollar arrangements have been given the protection of the UK settlement finality regulations and involve settlement of bilateral rather than multilateral net obligations, it remains unclear whether the provisions of US insolvency law might prevent completion of an orderly settlement in the United States if a US-incorporated CREST settlement bank failed. **The Bank continues to assess the CREST US dollar payment arrangements to broadly observe Core Principle I.**

CP 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.

As an embedded element of settlement in CREST, the payment arrangements do not have their own separate rules and procedures; instead, there are rules and procedures governing the DvP arrangements for the three settlement currencies included in CREST documentation (the *CREST Rules and Manual*) and, for the sterling payment arrangements, in the RTGS documentation (specifically the *RTGS Reference Manual*). Over the past year, the RTGS documentation has been updated for the United Kingdom's exit from TARGET. CREST documentation also describes in detail the operation of members' Cash Memorandum Accounts (CMAs) and the management of CMA debit caps. This documentation is updated regularly. Throughout 2008, the FSA has been consulting with major participants in the CREST US dollar settlement arrangements on intraday risk exposures. Its overall findings to date are that firms are generally aware of exposures and understand how to manage these risks. **The Bank continues to assess CREST's sterling and US dollar payment arrangements to observe Core Principle II.**

CP 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.

As sterling CREST settlement banks settle their obligations across central bank accounts in real time, the payment arrangement generates no credit risk between settlement members. There are likely, however, to be credit exposures between settlement members and the members to whom they offer CMAs. EUI provides the technical and legal infrastructure to reduce the exposure of settlement members to second-tier members by means of collateralisation (and such collateralisation has the protection of the UK FMIRs — see Core Principle I). The extent to which uncollateralised credit is granted depends on the terms of the agreement between each settlement bank and its customer. Responsibility falls clearly to the parties who would bear any losses in the event of default. Over the past year, EUI has sought to improve user understanding of the collateralisation procedure.

Liquidity risk could arise in the sterling payment arrangements if settlement members were unable to raise the liquidity to settle transactions, or unable to repay intraday liquidity provided by the Bank. Sterling liquidity can be raised in CREST either by transfer from CHAPS, or by self-collateralising repo with the Bank. The mechanism for transferring liquidity between the CREST settlement accounts and the banks' CHAPS settlement accounts has proved reliable and flexible. Settlement banks can consider the two accounts as a 'virtual single pot' of liquidity, with the option of repositioning balances between the accounts after each of the approximately 300 CREST settlement cycles every day. The rules on generating and transferring liquidity are set out in the *RTGS Reference Manual*.

By value, 91.3% and 98.7% of CREST CCP and gilt transactions respectively settled on their intended settlement date in 2008. Both the RTGS and CREST documentation describe the responsibilities of the different parties involved in the daily operation of the DvP mechanism in contingency as well as normal conditions. **The Bank continues to assess CREST sterling payment arrangements to observe Core Principle III.**

In relation to Core Principle III, the payment arrangements supporting CREST US dollar settlement are deficient in a number of respects. Settlement banks take on their CREST customers' gross bilateral payment obligations during the CREST settlement day. These are converted into bilateral net obligations only at the end of the day and the obligations are not extinguished until the settlement banks' US dollar correspondents have made the necessary payments on their

behalf in the United States. Settlement banks have arrangements with their clients which would allow them to claw-back any funds they have paid to their clients if they themselves fail to receive payment (for example, in the event of a default by another settlement bank). These arrangements are specified in bilateral agreements between each CREST member and its settlement bank. Assuming such arrangements are enforceable, members are exposed to the risk that, having delivered a security, they fail to receive payment (or payment is clawed-back) because their counterparty's settlement bank has failed to deliver.

To the extent that settlement banks pre-fund their accounts at their US dollar correspondent, they are subject to the small risk of settlement agent failure until the settlement is completed. Participants, however, have the right incentives to manage these risks.

US dollar settlement values remain modest relative to those for sterling settlement. They rose significantly over the period from 2003 to 2007, increasing from a daily average value of US\$0.5 billion at end-2003 to approximately US\$10 billion at end-2007. But during 2008, US dollar settlement values have fallen substantially, averaging US\$4.1 billion a day over the year and falling below US\$1 billion a day at year-end.

It is very important that settlement banks and CREST members understand the risks outlined above and have in place the appropriate systems and controls to manage them. During 2008 the FSA has investigated this issue with major participants in the CREST US dollar settlement arrangements as part of its ongoing supervisory relationship with these firms. It has concluded that, so far, firms understand these risks and are undertaking appropriate risk management.

Since there have been no changes to the operation of CREST to mitigate US dollar settlement risks, **the Bank continues to assess the current US dollar payment arrangements to partly observe Core Principle III.**

CP 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.

There are no material changes to report in respect of this Core Principle compared to the assessment in the 2007 *Oversight Report*. For sterling settlement, the payment arrangements offer real-time finality of the settlement banks' gross obligations at the end of each CREST settlement cycle. Cycle duration on the Single Settlement Engine (SSE) is determined by a time-based parameter agreed by EUI and the Bank. There are typically currently around 300 settlement cycles per day.

For the US dollar payment system, cash finality is achieved when the bilateral interbank payments are settled in the United States. Given the time difference, it may be that a settlement bank does not become aware that finality has been achieved until the following morning. Since there have been no changes to the US dollar settlement arrangements, **the Bank continues to assess CREST sterling payment arrangements to observe Core Principle IV, and the US dollar payment arrangements to partly observe Core Principle IV.**

CP 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.

None of the CREST payment arrangements employs multilateral netting, so this Core Principle is not relevant to CREST arrangements.

CP 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.

Interbank settlement in the sterling payment arrangements takes place in central bank money. Although the tiered nature of the CREST settlement arrangements means that non-settlement bank CREST members receive a claim on a commercial bank (a CMA balance) in final settlement of their transactions, such CMA postings generate an irrevocable instruction to the Bank to debit the settlement account of the buyer's settlement bank and credit the settlement account of the seller's settlement bank.⁽¹⁾ 'On us' or internalised transactions between members using the same settlement bank settle using commercial bank money. The number of settlement banks gives an indication of the degree of tiering in CREST. An increase in the number of settlement banks may reduce exposures to risks associated with tiering. During 2008, the proportion of total sterling transactions which were 'on us' increased substantially. This proportion increased from around 15% at the start of 2008 to a peak of over 25% in October 2008, before falling back in November and December 2008. The Bank will continue to monitor these trends. In 2009, the Bank will be further investigating the drivers of 'on us' settlement in order to ensure a full understanding of the related risks and implications for financial stability.

(1) Provided that the buyer of securities has a sufficient CMA balance (or debit cap), its settlement bank has a sufficient Liquidity Memorandum Account balance (either to cover the total value of the purchase or, if the securities being purchased are self-collateralising repo eligible, to cover the haircut on the self-collateralising repo) and the seller has the relevant securities.

For the US dollar payment arrangements, the interbank settlement involves transfers of funds between major US correspondent banks. **The Bank assesses CREST sterling payment arrangements to observe Core Principle VI, and the US dollar payment arrangements to partly observe Core Principle VI.**

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

CREST's sterling payment arrangements rely on the Bank-CREST DvP link. If the link between CREST and the Bank is interrupted, or in the event of an operational failure of the Bank's RTGS system, CREST is able to continue settling in 'recycle mode'.

Under ordinary circumstances, CREST communicates changes in settlement banks' memorandum account balances within CREST to the RTGS system to enable the updating of the central bank money settlement accounts held at the Bank. The RTGS system then sends information on liquidity balances back to CREST to update settlement banks' memorandum accounts. This 'cycling' of information between CREST and RTGS takes place at a very high frequency throughout the day. There are currently around 300 such cycles per settlement day. When the communication link with RTGS is broken, recycle mode allows CREST to update balances on the liquidity memorandum accounts within CREST without the high frequency information exchanges with the Bank, effectively re-using the liquidity already in the CREST system. Recycle mode also has procedures for banks to top up and draw down on their liquidity balances within CREST. CREST operated in recycle mode on 7 July 2008 (in response to problems with RTGS) with no reported problems.

Both CREST and RTGS have back-up processing capability that can be made fully operational within an hour of a major failure at the prime site. These arrangements are tested regularly.

The US dollar payment arrangements operate on a highly decentralised basis. There have been very few instances (and they have involved small bilateral net payments) of the end-of-day settlement not completing on the day because of operational difficulties.

Following CREST's migration to the SSE in August 2006, CREST experienced a number of operational problems. Operational problems continued in 2007, and there have been a number of material outages in 2008.⁽¹⁾ A number of these outages are attributable to the interface between the legacy CREST system and the SSE. Others were caused by erroneous entries (user and system).

EUI continue to monitor, review and follow up these operational incidents and have implemented hardware upgrades as well as permanent fixes to address known software issues. The 2007 *Oversight Report* outlined the Production Stability Plan (the Plan) drawn up by ESA in response to previous operational incidents. The objective of the Plan is to address identified problems and make significant improvements to the testing and launch environment.

Most of the actions detailed in the Plan have been implemented in 2008. Remaining items relevant to operational performance include further development of incident handling processes, improvements in group-wide project management and co-ordination of testing procedures.

During 2008, EUI and the Bank also implemented a major improvement in contingency capability that would enable a smooth and managed recovery from operational problems that prevent a normal close to the CREST settlement day. The Non-Standard CREST Closure (NSCC) project enables CREST to close without completing settlement, and in particular without DBVs settling and without SCRs being unwound. The NSCC procedures enable CREST to carry forward all account positions at the point of failure into the next business day (or until the operational outage has been resolved). At a settlement bank level this will involve overnight recourse to the Bank's operational Standing Facilities. EUI issued a white book on the NSCC in January 2009 and has held a familiarisation clinic for members and settlement banks. The Bank encourages EUI to progress with proposals to run a desktop exercise.

Reflecting recent operational incidents, **the Bank continues to assess CREST's sterling and US dollar payment arrangements to broadly observe Core Principle VII.** A sustained period of operational stability should strengthen observance of Core Principle VII.

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

There are no material changes to report in respect of this Core Principle compared to last year's assessment. CREST serves over 45,000 members who range from private clients (the vast majority) to banks and broker dealers, generating a mixture of low, medium and high-value payments. As mentioned under Core Principle III, in 2008, 91.3% and 98.7% of CCP and gilt trades respectively by value (88.8% and 98.3% by volume) settled on their intended settlement date. The liquidity transfer mechanisms supporting the sterling and payment arrangements appear practical, and the self-collateralising repo mechanism enables settlement

(1) See Section 2.2.

banks to economise on the liquidity devoted to the sterling payment arrangements. **The Bank continues to assess CREST's sterling and US dollar payment arrangements to observe Core Principle VIII.**

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

A prospective CREST settlement bank has to meet EUI's participation criteria (which are also applied to other CREST participants or users). These criteria are both objective and publicly disclosed (in the *CREST Rules and Terms and Conditions*). The *CREST Manual* also describes the functions which a CREST settlement bank is required to perform. However, the Bank and the existing CREST settlement banks have a right to determine whether a prospective participant should be admitted as a CREST settlement bank. This right is represented in an Agreement of Adherence that EUI, the Bank, the existing settlement banks and any prospective participant have to agree and sign. The Bank published its policy on the provision of CREST settlement accounts in November 2002. In 2003, it became possible to become a member of the sterling embedded payment arrangements without also being a member of CHAPS.

In last year's *Oversight Report*, the Bank upgraded its assessment of Core Principle IX to observed. This reflected EUI's work with the CREST settlement bank community and the Bank to ensure that all criteria which apply to settlement bank access (and ongoing participation) are publicly disclosed. A new Rule (Rule 16) was published in January 2008. **As there have been no changes to access criteria since then, the Bank's assessment of Core Principle IX for sterling and US dollar payment arrangements remains observed.**

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

As mentioned under Core Principle I, the provision of sterling payment services is governed by a variety of contracts between EUI, the Bank and the individual members of the payment systems. These detail which elements of the sterling payment arrangements each party is responsible for, and are supported by external audit, with both RTGS and CREST subject to an external SAS70 audit.

The governance arrangements of CREST as a system have a number of desirable features, in particular the involvement of independent Board directors within the ESA corporate structure. These help maintain accountability of the EUI executive and ensure that wider public interest objectives are considered.

There are a variety of fora at which the interests of the CREST community can be represented. These include the UK Market Advisory Committee: a consultative body set up as part of ESA's policy to ensure a high degree of user-governance in the various national markets where ESA provides settlement services.

The settlement banks, EUI and the Bank have held meetings to discuss operational and business issues related to payment systems. In February 2007, EUI established a new Settlement Bank Committee to act as a dedicated forum for discussion of issues relating to the interbank payment arrangements. During 2008, this forum has proven particularly useful for discussing issues and establishing lessons from recent events such as Lehman Brothers' default. The Bank encourages EUI to review options in 2009 for the structure of the Settlement Bank Committee which will incorporate both strategic and operational focuses. The Bank also urges banks to continue their active engagement in this process and will continue to monitor this.

The 2007 *Oversight Report* also discussed actions designed to address issues highlighted in the SSE Post Implementation Review. A number of these are related to governance: improvements to change, configuration and release management have since been implemented. The Bank particularly welcomes improvements in contingency communications. The Bank continues to monitor the implementation progress of items scheduled under the Production Stability Plan.

While welcoming the improvements discussed above, the continuance and nature of operational problems in 2008 highlights the scope for further improvements in governance. Formal arrangements are in place for managing EUI's outsourcing relationship with ESA and the Bank will continue to monitor how these work in practice. In particular the Bank will want to ensure that decisions over the allocation of resources at ESA take adequate account of the operational impact on EUI. A particular example of this is the impact on EUI of delays to the launch of the Single Platform. **The Bank therefore continues to assess Core Principle X as partly observed for sterling and US dollar payment arrangements.**

Annex C LCH.Clearnet Ltd

LCH.Clearnet Ltd provides central counterparty (CCP) services for the clearing of equities, commodities and derivatives. It clears for both exchange-traded and over-the-counter markets.

LCH.Clearnet Ltd operates a payment mechanism to effect transfers of funds to and from its members in the currencies in which it incurs exposures. This is known as the Protected Payments System (PPS). The PPS is the mechanism by which LCH.Clearnet Ltd discharges obligations relating to cash-settled transactions, collects initial margin and transfers variation margin.⁽¹⁾ The PPS consists of a network of commercial banks, which provide a settlement bank service to, and process payment transfers between, LCH.Clearnet Ltd and its members. LCH.Clearnet Ltd holds an account at each PPS bank and each member must have an account at a PPS bank in each currency in which it does business. For each currency, there is also a 'concentration bank' for LCH.Clearnet Ltd. Positive balances on LCH.Clearnet Ltd's accounts at the PPS banks as a result of the transfers between LCH.Clearnet Ltd and members are collected in LCH.Clearnet Ltd's account at the concentration bank. LCH.Clearnet Ltd meets any net debit positions with PPS banks, as well as investing surplus funds in the money market, through its concentration bank account.

The PPS in fact consists of two separate systems. The UK PPS is used for making calls (member debits) and pays (member credits) during the day. A second PPS operates in the United States (the US PPS), which is used to meet intraday margin calls made late in the day after the UK payment systems have closed. Given that average daily flows in the US PPS are less than 2.5% of the average daily flows in the UK PPS, the risks present within the US arrangements are much smaller than in the UK PPS. The US PPS is therefore not covered in this assessment, except where explicitly mentioned.

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

The arrangements for transfer of payments between LCH.Clearnet Ltd and its members through the UK PPS are governed by English law. The PPS is covered by LCH.Clearnet Ltd's designation under the Financial Markets and Insolvency (Settlement Finality) Regulations 1999 (FMIRs) implementing the EU Settlement Finality Directive in the United Kingdom. Under these regulations, payment transfer orders through the PPS are protected from the potentially disruptive effects of

insolvency proceedings against participants in the system. Separate *Settlement Finality Regulations* form part of LCH.Clearnet Ltd's *General Regulations, Default Rules and Procedures*. PPS banks that are not members of LCH.Clearnet Ltd are also signatories to the same *Settlement Finality Regulations*. In addition, LCH.Clearnet Ltd has obtained legal opinions to confirm that members who are not resident in the United Kingdom are able to commit to governance of their relationship with LCH.Clearnet Ltd under English law. **The Bank assesses the PPS in the United Kingdom to observe Core Principle I.** This assessment is unchanged from last year.

CP 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.

The participants in the PPS comprise LCH.Clearnet Ltd, its members, the PPS banks and the concentration banks. LCH.Clearnet Ltd's *General Regulations, Default Rules and Procedures* contain a section (*Settlement Finality Regulations*) setting out how the PPS operates and the obligations of the various parties. The *Settlement Finality Regulations* also define when payment transfers are considered to have entered into the system, and the point at which they become irrevocable.

Members of LCH.Clearnet Ltd are required to sign a PPS mandate, which grants permission for the PPS bank to debit the member's account according to instructions received from LCH.Clearnet Ltd. This mandate states the actions that the PPS banks are able to take without seeking further authority from the member.

PPS banks sign a *PPS Agreement* with LCH.Clearnet Ltd, which explains the obligations of each PPS bank in the system. The *PPS Agreement* fully explains the financial risks that PPS banks incur during the transfer process, particularly with regard to sending payment confirmations. The US *PPS Agreement* also explains financial risks to a similar level. **The Bank assesses the PPS to observe Core Principle II.** This assessment is unchanged from last year.

⁽¹⁾ 'Initial margin' is a returnable deposit required from a member for each open position, designed to offset the costs to LCH.Clearnet Ltd of settling open positions in the event of member default. 'Variation margin' is funds paid by (or received by) members to (or from) LCH.Clearnet Ltd to settle any losses (or gains) resulting from marking open positions to market.

CP 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.

Credit exposures arise between members and LCH.Clearnet Ltd as the CCP, rather than bilaterally between members. Since payments to and from LCH.Clearnet Ltd are made through the PPS banks, credit and liquidity exposures can also arise between a PPS bank and members, and between LCH.Clearnet Ltd and the PPS banks. However, because all the exposures are bilateral, the failure to pay by one of the PPS banks or by an individual LCH.Clearnet Ltd member would not disrupt the PPS arrangements more broadly, unless the amounts were large enough to affect LCH.Clearnet Ltd's ability to meet its own obligations in a timely manner. The failure of the concentration bank in any currency would be likely to cause more severe disruption to LCH.Clearnet Ltd, since the net funds held by LCH.Clearnet Ltd are collected in an account at this bank before they are invested in the money market.

The *PPS Agreement* between LCH.Clearnet Ltd and the UK PPS banks includes a formal deadline for transfer of funds to the concentration bank. This is two hours from the time that LCH.Clearnet Ltd notifies PPS banks to transfer funds to the concentration bank, or the CHAPS cut-off time, whichever is earlier. Although these funds are already held in the name of LCH.Clearnet Ltd on accounts at the PPS banks, the transfer of funds to the concentration bank allows LCH.Clearnet Ltd to offset the outgoing payments resulting from other obligations and to invest excess funds in the money market. Hence, if PPS banks make these transfers earlier in the day, the credit and liquidity pressures on LCH.Clearnet Ltd are reduced, and the CCP does not have to use intraday credit lines at the concentration bank in order to meet its obligations.

The *PPS Agreement* terms and conditions also set out rules governing non-compliance by PPS banks in meeting the deadline: if the deadline is not met on four or more occasions during any one calendar month, LCH.Clearnet Ltd can demand explanations for non-compliance and proposals to prevent recurrence. If improvements are not made, or if two or more late pay-ins occur within the following two-month period, the PPS bank is required to meet with representatives of LCH.Clearnet Ltd to discuss its performance. Thereafter, LCH.Clearnet Ltd has the contractual right (but not the obligation) to terminate a PPS bank's participation in the UK PPS, should any further late pay-ins arise.

The 2007 *Oversight Report* noted that LCH.Clearnet Ltd had been working further to improve PPS banks' observance of the two-hour pay-in deadline, through a more thorough investigation into reasons for non-compliance and by working

with PPS banks on ways to improve performance. But there is still work to be done to improve PPS banks' pay-in performance.

The Bank attended LCH.Clearnet Ltd's July 2008 PPS Forum to highlight the importance of such transfers being made in a timely manner. Given that PPS banks made 81% of pay-ins within one hour in 2008, the Bank also suggested that LCH.Clearnet Ltd might like to consider introducing a tighter payment deadline. LCH.Clearnet Ltd cannot instigate such a change without agreement from all the PPS banks and Forum members were concerned about consequences for their internal liquidity management of a formal change to the deadline. The Bank recommends that LCH.Clearnet Ltd and the PPS banks should give further thought to the feasibility of a tighter deadline as this would reduce credit and liquidity risk to LCH.Clearnet Ltd and enable PPS banks which are net recipients of funds to be paid in a more timely way.

The Bank assesses the PPS broadly to observe Core Principle III. This assessment is unchanged from last year.

Observance would be strengthened were fewer banks to miss the deadline through, for example, more rigorously applying existing controls or designing and implementing additional controls such as a shorter window for PPS pay-ins.

CP 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.

PPS banks are required, by 09:00 UK time on the day of receipt of the payment instruction, to confirm to LCH.Clearnet Ltd that they will meet the required payments on behalf of the clearing members. At this point, the PPS banks have made an irrevocable commitment to pay the amount owed to LCH.Clearnet Ltd. However, final settlement of these transfers between the members and LCH.Clearnet Ltd takes place when the relevant individual debit and credit entries are made across the accounts of the PPS banks.

In sterling and euro, the net amount due between LCH.Clearnet Ltd and the relevant PPS bank is then transferred between accounts in the name of LCH.Clearnet Ltd at the PPS bank and at the Bank of England, which acts as concentration bank for LCH.Clearnet Ltd in those currencies. Sterling and euro transfers are made via CHAPS and TARGET2 respectively and thus are settled with intraday finality. As noted above, prompt payment of these amounts by the PPS banks reduces the intraday risk to LCH.Clearnet Ltd.

US dollar transfers take place in both the UK and the US PPS systems. The arrangements for US dollar transfers in the UK PPS system are the same as those for sterling and euro, except that the transfers to and from the concentration bank

(Citibank in this case) take place across *nostro* accounts, rather than via CHAPS or TARGET2. The US PPS system is used for intraday calls after 16:00 UK time. Again, PPS banks are required to confirm their commitment to pay LCH.Clearnet Ltd. Concentration bank transfers are made via Fedwire, the US RTGS system, so these concentration payments are also final on the same day.

While sterling, euro, US dollar and Canadian dollar transactions are processed with same-day value in the PPS, for Australian dollar, Swiss franc, Danish krone, Hong Kong dollar, Icelandic krona, Japanese yen, Norwegian krone, New Zealand dollar, Polish zloty, South African rand, Czech koruna, Hungarian forint and Swedish krona transactions, the *nostro* arrangements in place only allow for final settlement on the day after the payment instructions are sent. However, as LCH.Clearnet Ltd makes calls in these currencies for next day value, final settlement still occurs on the day of value. In addition, LCH.Clearnet Ltd receives an irrevocable commitment on the same day as instructions are sent out, and the amounts transferred in these currencies are currently small relative to those processed with same-day value, representing less than 6% (£180 million on average per day) of the total amount transferred on average through the PPS. For some of the above currencies, time-zone constraints will prevent same-day finality. **The Bank assesses the PPS to observe Core Principle IV.** This assessment is unchanged from last year.

CP 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.

There is no multilateral netting of payments in the PPS. This Core Principle is not applicable to the PPS.

CP 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.

The first stage of the two-leg transfer of funds from members to LCH.Clearnet Ltd occurs via a book-entry transfer in commercial bank money on the books of the PPS banks. This transfer occurs if the member has sufficient funds on its account, or has in place adequate credit lines with its PPS bank to allow the payment to take place. The credit risk at this stage for LCH.Clearnet Ltd is on the PPS banks, while for the PPS banks there may be a credit exposure to the members for which they provide PPS services. Credit risks also occur in the opposite direction when LCH.Clearnet Ltd is due to make payments to members. PPS banks must have a minimum

long-term rating of A– from Fitch Ratings or the equivalent from Moody's or S&P.

The net amount transferred between LCH.Clearnet Ltd and its members is collected in an account in the name of LCH.Clearnet Ltd at the concentration bank. All transfers of funds to and from LCH.Clearnet Ltd and its members, as well as the transfers resulting from LCH.Clearnet Ltd's investment of cash in the money markets, pass across the concentration bank accounts. Hence the concentration bank plays a key role in the PPS arrangements.

The Bank performs the role of sterling and euro concentration bank, ensuring that LCH.Clearnet Ltd has access to a settlement asset free of credit risk. The concentration process in sterling and euro occurs by transfers from the other PPS banks to the Bank via CHAPS (sterling) and TARGET2 (euro). Not all of the PPS banks are direct members of CHAPS, which results in the possibility of credit or liquidity risks arising between indirect members and the CHAPS settlement banks that process their payments. However, there is no evidence that those PPS banks that do not have direct access to CHAPS experience delays in making transfers to the concentration bank.

In the remaining currencies, the concentration bank transfers are made across *nostro* accounts at commercial banks. Citibank is the concentration bank for US dollars in both the UK and US PPS, and HSBC acts as concentration bank for the other currencies. The amounts transferred in these currencies are small, with the exception of transfers in US dollars in the UK PPS system. Given the size of US dollar flows, it would materially reduce the overall risk in the PPS if LCH.Clearnet Ltd were able to establish an arrangement in US dollars which resulted in funds being held in the form of central bank account balances free of credit risk. Currently US dollar flows are transferred from the PPS banks to an account held in LCH.Clearnet Ltd's name at Citibank. Given there is potential for these flows to build up throughout the day, LCH.Clearnet Ltd can have a significant intraday credit exposure to Citibank.

Ideally, the Bank would like to see concentration of US dollar PPS flows in central bank money, though this has proved difficult given LCH.Clearnet Ltd's current institutional form. The Bank encourages LCH.Clearnet Ltd to continue to seek other ways to reduce its exposure to its commercial concentration bank for example, by more closely matching pay-ins and pay-outs across the concentration account to reduce the duration of exposures.

The Bank's assessments against Core Principle VI are unchanged from last year. **The Bank assesses the PPS to observe Core Principle VI for transfers in sterling and euro. For US dollar transfers, the Bank assesses the UK PPS to partly observe Core Principle VI, and the US PPS broadly**

to observe Core Principle VI. For transfers in other currencies, the Bank assesses the PPS to broadly observe Core Principle VI. However, for these other currencies the impact of a concentration bank failure is not deemed sufficiently large for there to be a need at this stage to eliminate the probability of commercial bank default.

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

The PPS arrangements rely on SWIFT, the CHAPS system and the TARGET2 system, as well as on the operational reliability of the individual PPS banks, the concentration banks and LCH.Clearnet Ltd's Treasury Operations department. LCH.Clearnet Ltd has both alternative data centres and operations sites, so that primary facilities do not represent a potential single point of failure in the event of a major disruption. The exact recovery times for processing to switch to the secondary sites would depend on the nature of the disruption, but plans allow for recovery of 'business critical' functions (including treasury operations) within two hours.

In the event of a SWIFT outage of sufficient coverage and/or duration, LCH.Clearnet Ltd would consider communicating with the PPS banks by fax, as one form of contingency. SWIFT and CHAPS have taken measures to ensure continuity of core services. In addition, LCH.Clearnet Ltd can make calls in the PPS system in the United States, which uses the Fedwire system. In November 2007, LCH.Clearnet Ltd extended the deadline for the US PPS from 18:30 to 21:00 UK time. This further strengthens the valuable contingency arrangements of the US PPS. The operational reliability and resilience of the systems used across the LCH.Clearnet Group are important for the functioning of the PPS. The PPS itself is an arrangement to transfer amounts owing between LCH.Clearnet Ltd and its members, but the calculation of these amounts is undertaken in other systems within LCH.Clearnet Ltd. These systems are also part of the 'business critical' functions under the business continuity plans mentioned above. **The Bank assesses the PPS to observe Core Principle VII.** This assessment is unchanged from last year.

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

Each LCH.Clearnet Ltd member is required to hold an account in each currency in which it incurs settlement obligations. There are currently thirteen banks in the UK PPS arrangements, and eight in the US PPS. Although not all the UK PPS banks provide accounts in all currencies, there is ample competition between PPS banks to ensure that members receive an adequate level of service and costs. **The Bank assesses the**

PPS to observe Core Principle VIII. This assessment is unchanged from last year.

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

All members of LCH.Clearnet Ltd are required to hold an account with at least one PPS bank. This requirement to participate forms part of the *General Regulations* of LCH.Clearnet Ltd, which are publicly disclosed. Members sign an LCH.Clearnet Ltd standard account mandate at the opening of an account, but all other aspects of the arrangement between the PPS banks and the members for whom they provide PPS services are part of a general banking relationship. Members are free to choose which PPS bank to use and may use a different bank for each currency.

LCH.Clearnet Ltd sets the criteria for participation in the PPS, which are publicly available. These detail the minimum financial and operational requirements important to the continued smooth operation of the PPS, which the PPS banks must maintain. They also detail orderly exit procedures for PPS banks if they either fall below the minimum financial and operational requirements, or choose to resign their membership. The criteria are published on the LCH.Clearnet Ltd website.⁽¹⁾ The website also advises interested parties how to obtain further information on participation in the PPS. **The Bank assesses the PPS to observe Core Principle IX.** This assessment is unchanged from last year.

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

Since the PPS is the payment mechanism that serves the LCH.Clearnet Ltd system as a whole, it does not have clearly distinct governance arrangements. However, LCH.Clearnet Ltd is subject to regulation by the FSA and its governance arrangements include the presence of independent non-executive directors (both on the Board of LCH.Clearnet Ltd and its parent, LCH.Clearnet Group Ltd), as well as a User Consultative Group and other representative bodies to take account of members' interests. In addition, LCH.Clearnet Ltd holds a meeting with the group of PPS banks in the United Kingdom four times a year and annually in the United States. The Bank has not identified any weaknesses in the effectiveness, accountability or transparency of the governance arrangements for the PPS.

Two groups have expressed an interest in owning the LCH.Clearnet Group. In conjunction with the FSA and the

(1) See www.lchclearnet.com/risk_management/ltlpps/pps_bank_requirements.asp.

other Joint Regulatory Authorities,⁽¹⁾ the Bank will assess the implications of any change in governance and, more broadly, any risks that could be created by a change in ownership. **The Bank assesses the PPS to observe Core Principle X.** This assessment is unchanged from last year.

(1) The British, French, Dutch, Belgian and Portuguese central banks and financial markets regulators.

Annex D Bacs

The Bacs payment system provides processing of bulk electronic automated payments. Its principal products are Direct Debits, Direct Credits and Standing Order payment instruments. The payment system is owned by Bacs Payment Schemes Ltd (Bacs), the members of which outsource provision of core processing services to Vocalink Ltd, a third-party company that provides the central infrastructure for Bacs.

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

Settlement of interbank obligations in Bacs is governed by the Settlement Agreement, a formal contract between members, providing assurances regarding the multilateral net settlement process.

Bacs is designated under the Financial Markets and Insolvency (Settlement Finality) Regulations 1999, which implement the EU Settlement Finality Directive in the United Kingdom. The Bank judges the legal basis for enforcement of the rules governing irrevocability of instructions, the multilateral settlement process, the finality of settlement and default arrangements in Bacs to be robust.

The Bank assesses Bacs to observe Core Principle I. This assessment is unchanged from last year.

CP 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.

The Settlement Agreement governs settlement of obligations between members, and the Liquidity Funding and Collateralisation Agreement (LFCA, implemented in May 2005 and discussed in the 2005 *Oversight Report*) provides a greater degree of clarity as to surviving members' financial obligations in the event of another member's failure to pay. Both agreements, as well as the clear comprehensive rules governing Bacs, ensure members understand the financial risks related to settlement of multilateral net positions.

The Bank assesses Bacs to observe Core Principle II. This assessment is unchanged from last year.

CP 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.

The basic obligation of Bacs members to settle multilateral net amounts is clear and the Settlement Agreement between members makes that obligation enforceable.

Introduction of the LFCA in 2005 clarified the procedure for managing liquidity and credit risks and it is structured on the basis that those who bring risk to the system bear the cost of meeting it. While the LFCA has significantly reduced settlement risk in Bacs (and C&CC) it has not eliminated it completely. This is because the obligations to the system of an affected member could still exceed the amount of liquidity committed by other members, leaving surviving members with residual exposures. There are currently no clear controls to avert such situations or clear procedures to manage residual liquidity and credit risks were such a situation to arise.

Functionality to apply appropriate thresholds to members' net debit positions within Bacs is available in the central processor and is currently being used informally to monitor intraday positions. Any intraday breach of the soft debit caps triggers a referral to Bacs to investigate with the member. Additionally, Vocalink Ltd, in conjunction with Bacs, has developed a new transaction referral type designed to highlight abnormally large payments. Where a payment is referred to Bacs under this rule, it is investigated to ensure that the payment size is not erroneous, and requires explicit permission to proceed. These new arrangements, while still informal, should help to provide an early warning mechanism for severely deteriorating Bacs net debit positions, capture any large payments potentially made in error and stop any erroneous payments proceeding to the settlement stage.

The Bank considers that the formal implementation of the debit caps and new 'over limit' transaction referral type should help to lower settlement risk in Bacs further, potentially delivering greater observance of Core Principle III.

In addition, functionality exists in the central processor to remove the payments of an affected member from the start of the processing day (so-called 'regression'). System exclusion

functionality is also in place to remove payments from a specific point in time, or from the start of the next processing day. Given that Bacs operates on a three-day cycle, removing an affected member's intraday commitments on the day of default and before those payments have become irrevocable would further reduce the probability that its settlement obligations were larger than the aggregate liquidity committed under the LFCA. Bacs has made some progress on introducing regression over the past year, facilitating two member workshops to work through key scenarios and responding directly to members' concerns.

The Bank assesses Bacs to broadly observe

Core Principle III. This assessment has not changed from last year. Formal implementation of debit caps and the new transaction referral type, together with the introduction of regression could contribute to managing credit and liquidity risks and would strengthen Bacs' observance of Core Principle III.

CP 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.

Under normal circumstances, final settlement in Bacs occurs on the day of value. Although the point of finality is not defined in the Bacs rules, it seems likely that settlement would be considered final when the net positions have been posted to members' settlement accounts at the Bank of England. It is at this point, on day three of the clearing cycle, when members receive value.

Outside normal circumstances, the LFCA provides a mechanism for ensuring timely settlement of obligations between Bacs members in the event of the failure of a member in a net debit position to meet its obligations. But this only occurs if the net debit position of the affected member can be met in full by the liquidity committed under the LFCA. Otherwise, settlement might not take place until after day three of the interbank clearing cycle.

The Bank assesses Bacs to observe Core Principle IV. This assessment has not changed from last year. However, it notes the importance of implementing further innovations noted in its assessment against Core Principle III for increasing the likelihood of timely settlement under the LFCA outside normal circumstances.

CP V. A system in which multilateral netting takes place should, at a minimum, be capable of ensuring the timely completion of daily settlement in the event of an inability to settle by the participant with the largest single settlement obligation.

During 2008, Bacs developed an extensive disaster recovery framework which involved investigating how quickly Bacs, the VocaLink Ltd infrastructure and members could process payments in order to catch up following a delay. The framework outlines communication plans and how settlement cycles would be run in particular scenarios. The Bank has asked Bacs to conduct a formal test of the framework in 2009.

The LFCA covers both Bacs and the C&CC and provides a mechanism to ensure timely settlement in the event of a settlement member default. As noted under Core Principle III, net debit positions could still exceed the committed liquidity of surviving members. Even with the implementation of debit cap functionality in Bacs, some settlement risk would still exist because the LFCA covers both Bacs and the C&CC, and debit cap functionality is not considered practicable for the latter. This means that Bacs members could face uncapped exposures to a defaulted member who is also a member of the C&CC, with those exposures in excess of liquidity committed under the LFCA.

There is currently no arrangement ensuring any such liquidity shortfall would be met. Given the low probability of such a shortfall occurring, any such arrangement would need to be pragmatic in design but could help Bacs achieve full observance of Core Principle V.

In the absence of such arrangements, **the Bank assesses Bacs broadly to observe Core Principle V.** This assessment has not changed from last year.

CP 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.

Settlement of multilateral obligations between members of Bacs takes place across accounts held at the Bank.

The Bank assesses Bacs to observe Core Principle VI. This assessment has not changed from last year.

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

Bacs has documented a wide range of operational risk controls applicable to member banks and users of Bacs. In particular, the implementation of the Direct Debit Recall Agreement in 2007 delivered benefits for all members and users of the system, particularly in relation to reducing operational risk in a default scenario.

VocaLink Ltd has well-established operational risk controls relating to processing of Bacs payments. Operational performance against agreed standards is monitored by VocaLink Ltd management and the Bacs Operations and Compliance Committee. An external SAS70 Audit covering both Bacs and VocaLink Ltd provides further independent assessment of the performance of controls against control objectives.

Cumulative delays to settlement caused by members amounted to less than 30 minutes in 2008. This is a significant improvement on 2006 and 2007. However, there has been a noticeable increase in minor operational incidents involving the central infrastructure provider, VocaLink Ltd. These have yet to manifest themselves as serious delays to settlement, but the Bank will continue to monitor intraday outages across the systems using VocaLink Ltd infrastructure to assess their impact and any knock-on effect.

Bacs has established disciplinary procedures and mechanisms for monitoring member behaviour against operational rules, including self-certification. However, it remains unclear what powers of sanction Bacs can draw on in the event of rule breaches, other than the exclusion of the offending member(s) from the system.

Bacs members are responsible for their own processing arrangements in Bacs and have all established contracts with VocaLink Ltd for the provision of core processing services. VocaLink Ltd's processing performance is measured against target levels defined in the Service Level Agreement (SLA) with Bacs members and is reported on a monthly basis.

During 2008, Bacs and VocaLink Ltd agreed a higher SLA for the availability of the Bacstel-IP channel. Previously, the SLA for Bacstel-IP was to be available 99.5% of the time, which was well below similar SLAs for some other UK payment systems (which have SLAs of 99.95% or higher). While the new Bacs SLA — for Bacstel-IP to be available 99.7% of the time — remains below these levels, the Bank considers that, at this stage, it is broadly appropriate for Bacs.

Over the past year Bacs continued to develop its disaster recovery framework, looking specifically at how quickly Bacs, the VocaLink Ltd infrastructure and members could process payments in order to catch up a delay caused by an unforeseen disaster. It is important for member banks to understand the potential implications of a significant delay to output from VocaLink Ltd. If a delay of more than one processing day occurred, members could be required to process two or more days' output in a single processing day. The framework designed by Bacs outlines communication plans and how cycles would be run in particular scenarios. The Bank considers testing this new framework to be one of the key priorities for Bacs in early 2009.

The Bank assesses Bacs broadly to observe

Core Principle VII. This assessment is unchanged from last year. The Bank welcomes the strengthened SLA for Bacstel-IP, but clear confirmation that member banks have in place (and have fully tested) processes to handle a backlog of payments could strengthen observance further.

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

The use of Direct Debits and Direct Credits has increased significantly over the past decade, partly as users have substituted out of other payment instruments, suggesting that Bacs payment instruments offer members a practical and efficient means of making customer payments. Bacs' operational performance also suggests a high degree of operational efficiency.

In 2005, the OFT Payment Systems Task Force (PSTF) recommended that a faster electronic retail payments service be introduced for telephone and internet banking payments. This new system, the Faster Payments Service (FPS), was implemented by the industry in May 2008 and there are expected to be clear associated net benefits to the UK economy, users and member banks (through reduced settlement risk) as more banks offer the FPS service to their customers.

PSTF's industry forecasts indicated that such a service could attract up to 10% of existing Bacs volumes over the first five years of operation. This suggests that current clearing cycles are appropriate for those payments which do not migrate from Bacs to the new service. And although reduction of the current Bacs clearing cycle (from D+2 to D+1) could still deliver benefits to member banks and users, discussions over the past year involving Bacs, the members and VocaLink Ltd have established that the substantial investment required and costs of changes or enhancements to members' software are prohibitive. Therefore Bacs has decided that there is no business case to progress the proposal for a shorter settlement cycle at this time.

The majority of standing order payments, which are currently processed by Bacs, are expected to migrate to FPS during 2009. This is because FPS presently settles three times a day, alleviating float,⁽¹⁾ making it a more attractive payment method to customers for most standing orders. In addition, given the shorter settlement timescale, settlement risk for standing orders processed by FPS will be lower than in Bacs.

The Bank assesses Bacs partly to observe

Core Principle VIII. This assessment is unchanged from last

(1) Float — the balances that are left with the members during the settlement window.

year. The migration of electronic retail payments, including Standing Orders, to the Faster Payments Service would help Bacs to strengthen observance of Core Principle VIII, as it is assumed that the current Bacs clearing cycles (D+2) would then be of appropriate duration for those payments which do not migrate to FPS. Work to reduce existing Bacs clearing cycles would also strengthen observance, if such a reduction could be shown to deliver clear net benefits.

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

In order to limit the risk that multilateral net settlement could fail to complete on account of a settlement member's failure to meet its obligations in a timely fashion, Bacs restricts settlement membership to credit institutions that are subject to prudential capital and liquidity regulation.

Following introduction of the LFCA, costs of settlement membership for existing members have become, in terms of collateral pledged, directly related to the risk that such members bring to the system in terms of the historical profile of their net settlement positions. To manage settlement risk brought by prospective settlement members, for which such positions may be unobservable, Bacs could consider arrangements to relate the collateral pledged to the credit ratings of applicants.

Bacs (and C&CC) have been considering the implications for their schemes of a member with a deteriorating credit rating, or of a prospective member with a low credit rating. Both of these could bring heightened financial risk to multilateral net settlement. In 2008, Bacs formally implemented minimum credit ratings as additional membership criteria. The minimum credit ratings have been specified as a minimum prime short-term rating (ie A-3 from S&P, P-3 from Moody's, F-3 from Fitch) and an investment-grade long-term rating (ie BBB from S&P and Fitch, Baa3 from Moody's). Existing members with credit ratings that deteriorate below the minimum will be required to exit Bacs within nine months. If, during this nine-month period, their credit ratings increase back above the minimum and are maintained there for three consecutive months prior to the expiry of the nine-month period, the requirement for them to withdraw is removed. A prospective member is required to have credit ratings above the minimum for at least three months before the date at which they apply for Bacs membership.

The introduction of transparent and objective risk-based membership criteria in the form of minimum credit ratings marks significant progress for the management of financial and operational risks in Bacs via improved transparency of access criteria. It reduces these risks for the existing members of Bacs and improves the resilience of the system to the benefit of all its end-customers.

Following the OFT PSTF Report a new membership category, the Affiliates Group, was formally launched in December 2005. It acts as the main vehicle for communications and decision-making among the Bacs affiliates, volunteering attendees to assist Bacs with investigating potential innovations and educational opportunities relating to Bacs. This has helped improve access to the Bacs scheme without introducing additional risk to processing or settlement in the Bacs system.

The Bank assesses Bacs to observe Core Principle IX. As Bacs has now established criteria for minimum credit ratings, the Bank assesses that this significant improvement has strengthened their observance of Core Principle IX. Therefore the Bank is pleased to upgrade its assessment of Bacs against Core Principle IX this year. Last year, the Bank assessed Bacs to broadly observe Core Principle IX.

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

The governance arrangements of Bacs are clear and effective in relation to the needs of members. Control over and responsibility for management of the system ultimately rest with the Bacs Board, which exercises effective control of the company's executive team. The Board is supported by a number of technical committees, which operate under clear terms of reference and benefit from industry-wide membership, helping to ensure an appropriate level of expertise.

The relationship between Bacs, its members and VocaLink Ltd is specified through a number of contractual arrangements. The quality of relationship between Bacs and VocaLink Ltd appears sound, the former monitoring the latter's operational performance and broader financial position as a control against risks to payment processing.

Bacs is a member-operated company whose Board has no independent representation, in contrast to best practice in corporate governance for listed companies.⁽¹⁾ VocaLink Ltd has both an independent Chairman of its Board and of its Audit Committee. In view of Bacs' importance to the smooth running of the UK economy, the Bank considers the company to have a clear public role and that best practice in corporate governance is relevant to Bacs. To that end, Board representation of external stakeholders could help to ensure the interests of such groups are included in Bacs' decision-making process.

Bacs has a contractual relationship with the Payments Council. Under the terms of the contract, the scheme will comply with

(1) The Combined Code on Corporate Governance (2003) recommends that the board of a listed company include independent, non-executive directors (see www.fsa.gov.uk/pubs/ukla/tr_comcode2003.pdf).

directions given by the Payments Council's board in relation to, *inter alia*, strategic issues, innovation and integrity. In essence therefore, introduction of the Payments Council goes some way to addressing concerns noted in the 2005 *Oversight Report* about the degree to which Bacs' own objectives accommodate systemic risk considerations, alongside those of other stakeholders.

The Bank assesses Bacs to broadly observe

Core Principle X. This assessment has not changed from last year. Extending Board representation to external stakeholders would strengthen observance.

Annex E Faster Payments Service

As discussed in Section 2.7 of the main report, the Faster Payments Service (FPS) is a new payment system that provides settlement of retail electronic payments in the United Kingdom in near real time. Since its launch in May 2008, the core infrastructure of FPS has performed well, but levels of activity were low relative to its design specification and longer-term expected volumes. This is partly because the launch and build-up of the system have been phased. It is also because member capabilities vary and their ability to offer a full range of services — even within the constraints of the phasing — is not developing as fast as had originally been anticipated. The ability of FPS to handle full service and traffic levels therefore remains unproven. Against this background, the Bank's assessment of FPS against the Core Principles can only be preliminary. CHAPSCo manages the scheme and members of FPS outsource the provision of core processing services to VocaLink Ltd, a third party company that provides the central infrastructure for FPS, Bacs and LINK.

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

Settlement of interbank obligations in FPS is governed by the settlement documentation and FPS Membership Agreements. These are formal contracts between members providing assurances about the multilateral net settlement process.⁽¹⁾

CHAPSCo is in the process of applying for designation of FPS under the Financial Markets and Insolvency (Settlement Finality) Regulations 1999, which implemented the EU Settlement Finality Directive in the United Kingdom.

The Bank assesses FPS to broadly observe Core Principle I.

If the Bank determines that the legal basis for the enforcement of rules governing the irrevocability of instructions, the multilateral settlement process, the finality of settlement and default arrangements in FPS are robust and approves designation, this will strengthen the current assessment.

CP 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.

The Settlement Agreement governs settlement of obligations between members, whereas the Liquidity and Loss Sharing Agreement (LLSA, implemented in May 2008 alongside the

introduction of the new system) provides a greater degree of clarity about unaffected members' financial obligations in the event of a member's failure to pay. Both agreements, as well as the clear and comprehensive rules governing FPS, ensure members understand the financial risks related to settlement of multilateral net positions.

The Bank assesses FPS to observe Core Principle II.

CP 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.

The basic obligation of FPS members to settle multilateral net amounts is clear and the FPS Membership Agreement between members makes that obligation enforceable.

FPS is designed to improve the speed with which retail payments can be made and the Bank welcomes this improvement in efficiency in UK payment systems. However, it also recognises that the ability of customers to move money faster by remote electronic means could accelerate financial instability. For example, if customers lose confidence in an institution with which they have deposits, there is, in theory, the potential for large exposures to rapidly build up in the system before settlement has taken place.

FPS has several features which are designed to mitigate these risks. First, it has set a maximum value for transactions. At present, these are £10,000 on Single Immediate Payments (SIPs), £10,000 on Forward-Dated Payments (FDPs) and £100,000 on Standing Order Payments (SOPs), although individual members can set lower limits. If a customer attempts to make a payment that exceeds these limits, the payment is blocked.

Second, FPS has set Net Sender Caps (NSCs) on each of the members. These limit the overall net debit position that members can enter into in any settlement cycle. If a given payment would breach a member's NSC, then it is rejected by the central infrastructure and the customer inputting the

(1) Settlement documentation comprises Settlement Service Provider Agreement, Liquidity and Loss Share Agreement, and Deed of Charge.

payment will be required to wait until their member bank has sufficient room under its NSC for the payment to proceed (this could, for example, mean waiting until the member receives sufficient incoming payments, or waiting until the next settlement cycle). There is no queuing system for rejected payments, so customers whose payments are rejected have to re-input the payments.

The NSCs are determined by a formula (agreed by the FPS Settlement Risk Committee and recommended to the CHAPSCo Board) which references gross outward values. At the system launch, the NSCs were set at 150% of January 2007 estimated gross outward payments. As the system is still new, caps are being reviewed on a quarterly basis; this is expected to become an annual process in due course. The NSCs were reviewed in October 2008 and were reduced to 100% of January 2007 estimated gross outward values.⁽¹⁾ Liquidity and collateral commitments were reviewed at the same time. At a recent FPS Settlement Risk Committee meeting, NSCs were reduced to 75% of initial FPS values. Members have collateralised the LLSA at this level. Any temporary change in the NSC, whether an increase or a decrease from the value derived by the formula, does not change the values of the members liquidity and collateral commitments in the LLSA.

Finally, FPS provides for the LLSA, which is designed to compensate members of the Scheme for any irrecoverable exposures to a member which goes into default. The members commit to provide liquidity collectively to the value of the highest NSC in the system; commitments are in proportion to their individual NSCs. These contributions to the LLSA are in the form of collateral deposited with the Bank.

Implementation of the LLSA clarified the procedure for managing liquidity and credit risks and is structured on the basis that those who bring risk to the system bear the cost of meeting it. While the LLSA significantly reduces settlement risk in FPS, it has not eliminated it completely. If all committed liquidity is used, or three or more members either fail to settle their obligations or are unable to provide liquidity when requested under the LLSA, commitments to provide liquidity cease and the LLSA is renegotiated.⁽²⁾

The Bank assesses FPS to partly observe Core Principle III. Implementation of controls to manage the residual liquidity and credit risk would strengthen observance.

CP 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.

Under normal circumstances, final settlement in FPS occurs on the same working day in one of the three daily settlement

cycles.⁽³⁾ Although the point of finality is not defined in the FPS rules, it seems likely that settlement would be considered final when the net positions have been posted to members' settlement accounts at the Bank since it is at this point when members receive value.

Shortly after each settlement cycle cut-off the central infrastructure sends a SWIFT MT298 settlement message to the Bank, and also sends a Unsolicited Message (USM) to each member informing them of their Multilateral Net Settlement Position — that is, how much they are obliged to pay, or due to receive, in the settlement. A member in net debit must ensure that there are sufficient funds in their settlement account at the Bank to cover their obligations. After settlement at the Bank, members receive a 'settlement complete message' from the central infrastructure. There is no partial settlement; either all members settle or the settlement is not completed.

Outside normal circumstances, the LLSA provides a mechanism for ensuring timely settlement of obligations between FPS members in the event of a settlement member default. This only occurs if the net debit position of the affected member can be met in full by the liquidity committed under the LLSA. Otherwise, settlement might not take place until after close of business of the final clearing cycle.

The Bank assesses FPS to broadly observe

Core Principle IV. However, it notes the importance of implementing controls to manage the residual liquidity and credit risk (as noted under Core Principle III) for increasing the likelihood of timely settlement under the LLSA outside normal circumstances.

CP V. A system in which multilateral netting takes place should, at a minimum, be capable of ensuring the timely completion of daily settlement in the event of an inability to settle by the participant with the largest single settlement obligation.

FPS implemented the LLSA in order to provide a mechanism to ensure timely settlement in the event of a settlement member default. If the failed settlement was scheduled to be before 14:00 and the failed member has not settled, the LLSA must be invoked by 14:00 (or earlier). If the settlement which failed was scheduled to be at or after 14:00, the LLSA must be invoked if the member has not settled by 17:00.

(1) For all members except one, which has retained its original limit.

(2) Default in two consecutive cycles count as a single default. Members who are part of the same Group are treated as a single Member for this purpose. Additionally, if full repayment of all obligations is completed by the defaulting member within 24 hours then their default is not counted for this purpose.

(3) Settlement times are 07:15, 13:00 and 15:45. However, settlement does not take place on weekends, hence the first settlement on Monday is usually the largest of the week.

The LLSA is designed to complete settlement by recourse to liquidity committed, which has been backed by collateral from March 2009. The basic principles are that: the cost of funding should be as low as possible consistent with the aim of reducing risk in the system to an acceptable level; the defaulter should make at least some contribution to the cost of its default; allocation of loss sharing should mirror that of liquidity funding; contributions to both should reflect risk brought to the system; the capital and liquidity implications should be minimised; procedures should be clear, simple and enforceable; and non-defaulting banks should retain legal rights against a defaulter for any losses incurred.

In the event of a member failing to meet its settlement obligations, liquidity to meet the affected member's obligations would be provided by the remaining members. The amount of liquidity drawn from each member is a function of the shortfall and the member's share of committed liquidity. Committed liquidity would be drawn on first, helping to avoid sale of collateral at distressed values. The total amount of liquidity committed is greater than the largest NSC, to reflect the fact that a member's Settlement Risk Position (across two cycles) may exceed their NSC. At go-live, the total amount of liquidity committed was around £900 million, while the largest NSC was £680 million. These figures are calculated with reference to the size of a member's NSC, the largest NSC in the system and the sum of all NSCs.

In the event of three or more members failing to settle their obligations or provide liquidity when requested by CHAPSCo under the LLSA, commitments of all other members to provide liquidity cease.⁽¹⁾ Additionally, members cannot be obliged to commit liquidity in excess of the Committed Liquidity Limit.

The occurrence of a 'Material Event' requires the renegotiation of the LLSA. Examples of such events are the accession, withdrawal or exclusion of a member, a regulatory capital event, or a change to NSCs which leads to a greater than 10% change in a member's collateral requirement.

As noted under Core Principle III, net debit positions could still exceed the committed liquidity of surviving members, therefore, some residual settlement risk still exists. There is currently no arrangement ensuring any such liquidity shortfall would be met. Given the low probability of such a shortfall occurring, any such arrangement would need to be pragmatic in design but could help FPS achieve observance of Core Principle V.

In the absence of such arrangements, **the Bank assesses FPS to broadly observe Core Principle V.**

CP 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.

Settlement of multilateral obligations between members of FPS takes place across accounts held at the Bank.

The Bank assesses FPS to observe Core Principle VI.

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

CHAPSCo has documented, within the FPS procedures, a range of operational risk controls applicable to member banks and users of FPS. Vocalink Ltd has established operational risk controls relating to processing of FPS payments. Operational performance against agreed standards is monitored by Vocalink Ltd management and CHAPSCo.

Cumulative delays to settlement caused by Vocalink Ltd during 2008 were in the region of seven hours, and related mainly to ongoing intermittent problems sending SWIFT MT298 messages from the central processor (Vocalink Ltd) to the Bank (RTGS system) for settlement. These delays were each generally of short duration, however, the Bank strongly encouraged the scheme and Vocalink Ltd to implement a permanent fix to this problem quickly and these changes have now been effected. The Bank considers it important that FPS settlement is carried out in a timely fashion, given that the purpose of FPS was to introduce near real-time clearing of retail payments.⁽²⁾

The system has been generally resilient since going live, and the only significant operational incident occurred in August 2008, when several members started to have problems accessing the central infrastructure due to a problem with a security certificate authentication server maintained by BT. The LINK system experienced similar problems, as it shares a secure network with FPS. While Vocalink Ltd has drawn up a detailed Service Improvement Plan with BT, the Bank has concerns about the system interdependencies that this incident revealed. This is an area that the Bank will be focusing on during the coming year.

(1) Default in two consecutive cycles count as a single default. Members who are part of the same Group are treated as a single Member for this purpose. Additionally, if full repayment of all obligations is completed by the defaulting member within 24 hours then their default is not counted for this purpose.

(2) Near real time clearing is used to describe settlement that is effected on the same day, but within a few hours of the transaction being first submitted. Additionally, where a transaction has been submitted on a non-working day, this will be settled in the first available settlement cycle on the next working day.

FPS has devised disciplinary procedures and mechanisms for monitoring member behaviour against operational rules, which include suspension or exclusion of a member. However, it remains unclear what powers of sanction FPS can draw on in the event of rule breaches other than the suspension or exclusion of the offending member(s) from the system.

FPS members are responsible for their own processing arrangements and have established contracts with Vocalink Ltd via Apacs Administration Ltd (AAL) for the provision of core processing services. FPS is a continuously live service, which is a major operational change for most members. Members themselves require some system downtime in order to carry out internal system upgrades, or housekeeping tasks. However, they are also required to meet their customer obligations without breaching their Service Level Agreements. The Bank recognises that it will take some time for members and FPS to adjust to the continuous operating nature of the system. It will, however, look for continual improvement and proof of sustainability of the members' Service Level Agreements.

The implementation of Phase II in 2009 will also be a challenge for FPS and its members, as upgrades and enhancements will need to be made while the system is in live operation. This will require careful planning and thorough testing before implementation.

FPS has been relatively operationally resilient since going live in May 2008. However, the average daily volumes processed by the system are still relatively low and Phase II is yet to be implemented. There is, therefore, currently insufficient evidence to fully assess FPS against Core Principle VII. As such, **the Bank is not rating FPS against Core Principle VII.** In order for FPS to achieve observance of Core Principle VII, the Bank will need to see a longer record of operational resilience, the full and successful implementation of Phase II and a complete and successfully conducted set of tests of contingency procedures.

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

In 2005, the OFT Payment Systems Task Force (PSTF) recommended that a faster electronic retail payments service be introduced for telephone and internet banking. FPS was implemented by the industry in May 2008 and there are clear associated net benefits to the UK economy, users and member banks through reduced settlement risk. Additionally, users of FPS will benefit through more timely receipt of funds and at lower cost than would be incurred by initiating a CHAPS payment. However, at the present time, not all customers are able to use FPS as some members have not yet made the service fully available. As such, the average daily volumes

processed through FPS are still low relative to other retail payment systems and to the forecasts of average volumes once FPS is fully implemented.⁽¹⁾ Access for users is expected to increase throughout 2009.

FPS volumes are expected to grow steadily and will include payments which were previously sent through CHAPS and Bacs. CHAPSCO estimates that within five years FPS could absorb up to two thirds of CHAPS volumes, although these will be mainly from the lower-value payments. Bacs estimates that FPS will attract up to 10% of existing Bacs volumes by 2010; the majority of these relating to standing order payments.

The Bank will assess FPS against Core Principle VIII once FPS volumes have increased and Phase II has been implemented.

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

In order to limit the risk that multilateral net settlement could fail to complete on account of a settlement member's failure to meet its obligations in a timely fashion, CHAPSCO restricts settlement membership to credit institutions which are subject to prudential capital and liquidity regulation. Detailed membership criteria are specified in the FPS Rules.

There are currently thirteen members of the FPS: Abbey; Alliance & Leicester; Bank of Scotland; Barclays; Citibank; Clydesdale Bank; Co-operative; Danske; HSBC; LloydsTSB; Nationwide; Northern Rock; and Royal Bank of Scotland. However, Phase II of FPS (Direct Corporate Access), which was launched in March 2009, will enable access to Directly Connected Agency Banks for whom the sponsoring member will be held wholly responsible.

Phase II membership is expected to be the same as the current membership. Directly Connected Agency Banks, Direct Corporates, Bureaux and Third Party receivers will not become members of FPS; they will be sponsored by a member or by a Directly Connected Agency which, in turn, will be sponsored by a member. Access criteria for these indirect members is yet to be determined and so, at this stage, the Bank is unable to assess fully whether the access criteria as a whole are open and transparent. Bacs introduced a separate membership category for Affiliates and depending on the type of membership that FPS attracts longer term, this is something that FPS could consider in order to improve transparency. This could improve access to the scheme without introducing additional risk to processing or settlement.

(1) Relatively low average daily volumes may also be associated with the individual transaction and net sender caps in place in FPS (see assessment under Core Principle III).

FPS should also consider the implications of a member having a deteriorating credit rating, or of a bank with a low credit rating applying for membership. Both of these could bring heightened financial risk to multilateral net settlement. Introduction of minimum credit ratings as additional membership criteria, as has been recently adopted by a number of other retail payment systems, would mitigate this risk.

The Bank assesses FPS partly to observe Core Principle IX. In order to strengthen observance, the Bank encourages FPS to introduce objective, risk-related membership criteria.

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

In 2006, CHAPSCo successfully tendered to manage FPS from its go-live date. However, subsequent events led to FPS being implemented in two phases: Phase I comprised the basic member to member FPS functionality and went live in May 2008; Phase II comprised the functionality needed to support the File Input Module (FIM), Directly Connected Agency Banks, Third Party Beneficiaries and Direct Corporate Access and went live at end-March 2009. Until Phase II beds down there will be split governance between the FPS system (CHAPSCo) and FPS Phase II (AAL, steered by the Faster Payments Implementation Group), which is governed by a Memorandum of Understanding between CHAPSCo and AAL. AAL intends to novate its rights, responsibilities and liabilities for FPS to CHAPSCo around the third quarter of 2009.

The governance arrangements of CHAPSCo are clear and effective in relation to the needs of members. Control over and responsibility for management of the system ultimately rests with the CHAPSCo Board, which exercises effective control of the company's executive team. The CHAPSCo Board is supported by a number of technical committees, which operate under clear terms of reference and benefit from industry-wide membership, helping to ensure an appropriate level of expertise.

CHAPSCo has a contractual relationship with the Payments Council. Under the terms of the contract, FPS will comply with directions given by the Payments Council's board in relation to, *inter alia*, strategic issues, innovation and integrity.

The relationship between CHAPSCo, its members and VocaLink Ltd is specified through a number of contractual arrangements. The quality of relationship between CHAPSCo and VocaLink Ltd appears sound, although as this is still a relatively new relationship, the Bank is unable to fully assess the effectiveness and accountability between the system and infrastructure at this time. As a control against risks to payment processing CHAPSCo needs to develop its

relationship with VocaLink Ltd and continue to monitor its operational performance and broader financial position.

The Bank assesses FPS to partly observe Core Principle X. Governance arrangements should become more effective and accountable as CHAPSCo takes over full management responsibilities for the FPS scheme.

Annex F The Cheque and Credit Clearings

The Cheque and Credit Clearings (C&CC) consist of three separate clearings, which provide clearing and settlement for sterling debits (cheques); euro debits; and sterling credits respectively. While these instruments are processed separately and in slightly different ways (in particular, the degree of automation of processing is higher for the majority of sterling cheques than for other payment instruments) they are part of a single payment scheme. The C&CC are managed by the Cheque and Credit Clearing Company (C&CCC). Most members of the C&CC have chosen to outsource their processing operations. The following assessment covers all three clearings, differentiating where necessary.

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

Members have all signed the *Membership Agreement*, a formal contract committing them to abide by the rules and decisions of the company Board: this clearly defines the obligations of members.

Unlike other payment instruments, there is a substantial body of English law pertaining to cheques. Statutes relate to the treatment of paper cheques and the C&CC must operate in accordance with these statutes. The rules and procedures of the C&CC cover the main aspects of the system's operations and appear to provide an adequate legal basis for its operation.

The settlement of intermember obligations within the C&CC, which takes place on day three of the clearing cycle, is governed by the *Settlement Agreements*. This is a formal contract between members and the C&CCC which seeks to remove legal uncertainties about whether these intermember obligations would be upheld following the insolvency of a member. Additional assurance of the enforceability of the systems' default arrangements was obtained when the Cheque Clearing System and Credit Clearing System were designated in September 2008 under the Financial Markets and Insolvency (Settlement Finality) Regulations 1999 (FMIRs), which implement the EU Settlement Finality Directive in the United Kingdom. Specifically, it provides that a system's rules shall take precedence over the general provisions of insolvency law. Once entered into a designated payment system, payments continue to be subject to the rules of that system, eg pertaining to irrevocability and calculation of multilateral net settlement amounts, even when the participant that has

made them becomes insolvent. Obtaining Designation has strengthened observance of Core Principle I.

Designation has not been sought for the Euro Debit Clearings. The Bank is currently content with this given the relatively small volume and value of payments processed, exchanged and settled in this clearing.

The Bank's Designation Committee suggested that greater legal certainty would be provided by formalising the arrangements for calculating settlement obligations in the event of multiple member insolvencies. This risk arises because the operational disruption caused by insolvency may prevent the affected members from submitting their settlement totals.⁽¹⁾ If multiple members encountered this problem at the same time, the C&CCC would need to use informal procedures for calculating settlement positions for the remaining members. Incorporating these arrangements into the *Clearing Rules* would mitigate the risk that they could be subject to legal challenge if they were used, and hence further strengthen observance of Core Principle I. The *Clearing Rules* already specify arrangements for calculating settlement obligations in the event of a single insolvency.

All members signed up to the *Cheque and Debit Recall Agreement* in 2007 Q3, reducing legal, credit and operational risk within the system. This aims to prevent a liquidator seeking to return via the unpaids process⁽²⁾ all cheques drawn on a failed member and its customers, which could cause operational difficulties for members in handling a large volume of unpaid cheques (unless permitted under usual procedures), and impose credit exposures on surviving members in respect of dishonoured cheques already credited to their customers' accounts.

The C&CCC was encouraged to seek legal advice on the existence and extent of conversion risk.⁽³⁾ Counsel opined that, in the event of collecting bank insolvency, it was highly unlikely that the payee would have a claim against the paying

(1) This risk could also arise if operational difficulties unrelated to insolvency prevented multiple members from submitting their totals.

(2) There are instances in which a cheque might not be paid by the paying member bank, for example, if the payer had insufficient funds in its account to cover the full value of the cheque. The unpaids process is used to return to the collecting member bank those cheques that cannot be paid by the paying member bank.

(3) Conversion risk is the theoretical risk that a member (acting in its capacity as a paying bank) might face claims in the tort of conversion from customers of another failed member (acting in its capacity as a collecting bank) if it settled its obligations to the failed member instead of returning the cheque as unpaid.

bank for loss arising from the payment of the cheque: that is, that the paying bank would not be subject to conversion risk.

The Bank now assesses the C&CC to observe Core

Principle I. Achieving designation of the Cheque Clearing and Credit Clearing under the FMIRs means the Bank now assesses Core Principle I to be fully observed. Formalising the procedures for calculating settlement obligations in the event of multiple members being unable to submit their totals would further strengthen observance.

CP 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.

Work on the *Settlement Agreements* and the *Liquidity Funding and Collateralisation Agreement* enabled members to examine, clarify and reduce the credit and liquidity risks associated with the settlement of multilateral net positions. Work on the *Cheque and Debit Recall Agreement* (and associated conversion risk) has also identified and sought to mitigate further the financial risk that members incur through participation in the system.

The C&CCC has Immediate and High Value Adjustment processes in place to deal with significant errors in settlement figures. These processes help mitigate the risk of significant errors in settlement figures and reduce settlement risk in the system. The High Value Adjustment process is designed for the rare occasion when there is a need to correct a settlement due to a large error in an individual payment, which could otherwise have implications for a member's liquidity. It permits two members, in consultation with the C&CCC, to submit a bilateral settlement adjustment which is settled in RTGS at the same time as the relevant main settlement. The Immediate Adjustments process was developed in response to the *Settlement Agreements*, which require settlement to be based on the totals exchanged before any in-clearing adjustments. The process allows the receiving bank to revert to the same overall settlement position as would have been the case prior to the *Settlement Agreements*, avoiding the need to re-engineer in-clearing systems or carry forward or hold over clearing errors to subsequent days.

While the introduction of the *Liquidity Funding and Collateralisation Agreement* (LFCA) in 2005 significantly reduced settlement risk in the C&CC (and Bacs), it did not eliminate it completely. It is still possible for an insolvent member's obligations to the system to exceed the total liquidity committed by other members under the LFCA. If the C&CCC were to develop and formalise arrangements for allocating this residual settlement risk, this would further strengthen observance of Core Principle II.

The Bank assesses the C&CC to observe Core Principle II.

Formally allocating residual settlement risk would further strengthen observance.

CP 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.

The basic obligation of members to settle net amounts is clear and the *Settlement Agreements* makes those obligations enforceable.

The High Value Adjustment process to deal with the possibility of significant errors in settlement figures and the *Cheque and Debit Recall Agreement* are both important controls against settlement risk. Additionally, the introduction in 2008 of minimum credit ratings as a criterion for membership has also strengthened these controls (see CP IX for details).

The *Liquidity Funding and Collateralisation Agreement* (LFCA) covering the C&CC and Bacs clarifies the procedures for managing liquidity and credit risks that would crystallise in the event of a member failing to settle. It aims to ensure that settlement could complete. Each member contributes a quantity of collateral determined by a historical measure of their debit positions. The LFCA substantially reduces, but does not eliminate completely, credit and liquidity risk from the system. As with Bacs, a residual risk remains that a member could default with a larger net amount than the liquidity that surviving members would be committed to provide. There are currently no clear controls to avert such situations or clear procedures to manage residual liquidity and credit risks were such a situation to arise.

After the euro debit settlement migrated from the Bank to the Central Bank and Financial Services Authority of Ireland in 2007, the C&CCC decided to make the LFCA apply only to sterling payments via Supplementary Agreement. This has left the euro settlement arrangements without a liquidity funding arrangement. The consequence of this is that if a member failed to fund its euro settlement obligation for any reason, a non-settlement day for euro would result. Due to the values and volumes involved, however, the associated risks and implications are judged to be small and the Bank has accepted that no new agreement is necessary.

The Bank assesses the C&CC to broadly observe

Core Principle III. Progress has been made in 2008 by introducing minimum credit ratings as a membership criterion. Should further controls be introduced to strengthen the LFCA, allocating the residual settlement risks, this would strengthen observance of Core Principle III.

CP 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.

Although the point of finality is not explicitly defined in the C&CC rules, it is likely that settlement would be considered final when the net positions of members had been posted to members' settlement accounts (on day three of the interbank clearing cycle).

Outside of normal circumstances, the LFCA provides a procedure to ensure timely settlement in the event of the failure of a settlement member in a net debit position to make its pay-in. A residual risk remains that liquidity committed by members under the LFCA could be insufficient to cover the net debit settlement position of the affected member. If this occurs, settlement might not take place until after day three of the interbank clearing cycle. Under normal circumstances, however, final settlement occurs on the day of value, so this risk is not sufficient to prevent the system from observing the Core Principle. Euro settlement is not covered by the LFCA (see CP III).

In 2008, the euro debit *Settlement Agreement* was amended, introducing an automatic 24-hour delay to exclusion for a failure to fund in the euro clearing. Such a situation now triggers a non-settlement day in euro for that day. This change aims to avoid a situation whereby operational difficulties preventing a member funding their position in the euro clearing caused the member to be excluded from all of the clearings. As such, this is a sensible amendment, although it does reduce observance of the euro clearing against Core Principle IV. It remains very important for members to continue to aim for high levels of operational reliability. Non-payment in the sterling clearings or failure to pay in the euro clearings on two consecutive days would still constitute an exclusion event.

Achieving designation of the Cheque Clearing and Credit Clearing under the FMIRs has provided additional enforceability of the system's default arrangements (see Core Principle I). This has strengthened observance of Core Principle IV.

The C&CCC is planning to move to a more automated, SWIFT-based settlement process for the clearings in 2009. By reducing the probability of human error in the settlement process, this will strengthen observance of Core Principle IV.

The Bank assesses the C&CC to observe Core Principle IV. Observance of Core Principle IV would be further strengthened if residual settlement risk was allocated.

CP 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.

The LFCA has established a procedure to ensure timely completion of sterling settlement if a settlement member fails in a net debit settlement position. However, a small risk remains that the largest single net debit settlement obligation could exceed the amount of liquidity committed by surviving members under the LFCA. This residual risk could be mitigated if Bacs and the C&CCC had the ability to implement thresholds at appropriate net debit positions. The use of debit thresholds is currently being explored by Bacs, but the Bank recognises that there are practical obstacles to placing debit thresholds on members' multilateral net settlement positions in a paper-based system such as the C&CC.

Given the inability to cap exposures in the C&CC, the system should instead define procedures to allocate residual risk. For example, any shortfalls in liquidity could be met by surviving members in proportion to their contributions to the liquidity already committed under the LFCA. The Bank has encouraged the C&CCC to consider whether allocation of residual risk on this basis is a legally robust and practical solution. Under the current arrangements the Bank, acting as settlement service provider, would request remaining members to provide additional liquidity. While members have indicated they would seriously consider such a request, there is no obligation and hence a risk settlement would not complete in such a situation.

The Bank assesses the C&CC to broadly observe Core Principle V. Defining procedures to allocate residual settlement risk would strengthen observance of Core Principle V.

CP 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.

Sterling settlement between members takes place across accounts held at the Bank of England. Euro settlement takes place across accounts held at the Central Bank and Financial Services Authority of Ireland.

The Bank assesses the C&CC to observe Core Principle VI.

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

The systems and controls set out by the C&CCC for controlling operational risk are wide ranging and are generally well documented. Policies and procedures are in place to identify and address potential weaknesses. These are reviewed regularly, including an external SAS70 review of performance against control objectives. Contingency arrangements appear extensive and no significant shortcomings have been identified.

A core piece of infrastructure for the sterling cheque clearing — by far the largest clearing within the C&CC by both value and volume — is the Interbank Data Exchange (IBDE) network, across which details of cheques are sent to members. In 2006, an IBDE upgrade was successfully completed and the overall record of reliability of the network remains high.

IBDE aside, there is relatively little central infrastructure. Members are responsible for processing their paper cheques and credits, and most have chosen to outsource this function to a third-party supplier. The C&CCC has no direct, formal relationship with the outsourced service providers. Members self-certify their compliance with the system's control objectives. However, the discovery of underreporting of member performance against Service Level Codes (SLCs) by iPSL has highlighted a weakness in this arrangement.⁽¹⁾ SLC reporting was reviewed by an external auditor. It will be important that lessons are learned, and that appropriate controls are put in place to avoid future incidents of this nature.

This under-reporting has highlighted the complexities of a highly decentralised system like the C&CC, where members are individually responsible for processing their paper and most members have chosen to outsource this function to third-party suppliers. Observance of Core Principle VII would be strengthened if there was a clearly defined direct relationship between the C&CCC and third-party processors, in addition to the relationship the C&CCC has with its members. At present, however, the C&CCC has agreed a model with the members whereby the C&CCC is not permitted a formal direct relationship with members' third-party processors. If further consolidation of processing led to the creation of a single infrastructure provider, a contractual model similar to Bacs might be desirable, in which the infrastructure provider has entered into a service level agreement with both the scheme and its individual members. This would allow for greater leverage on the processor, and more transparency between members, the processor and the scheme as a whole. It is likely that such a model will become increasingly desirable as the volume of payments processed in

the clearings decline. It should be noted, however, that a lack of competition among suppliers does create its own risks; these would need to be appropriately managed.

In the absence of further consolidation among suppliers, further work to mitigate the risks inherent in this decentralised model would also strengthen observance of Core Principle VII. In particular, adequate assurances in respect of the risks posed by multiple member/supplier relationships and assurance from third-party processors of their compliance with the system's requirements would strengthen observance. The Bank was encouraged that in 2008 the C&CCC continued to try to improve communication with third-party processors, and would like to see this continue.

The Bank assesses the C&CC to broadly observe Core Principle VII. Observance would be strengthened if the direct relationship between the scheme and third-party processors was more clearly defined. The C&CCC obtaining adequate assurance from third-party processors of their compliance with the system's requirements would also strengthen observance.

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

The Office of Fair Trading Payment Systems Task Force established the Cheque Working Group (CWG) in 2005, which examined the costs and benefits of, and demand for, change to the current system in the context of rapidly declining cheque volumes in the United Kingdom. The Task Force concluded that there was not a strong case for a complete rebuild of the cheque clearing system. Research showed that the number of cheques in circulation is falling by around 8% per year and this rate of decline is likely to increase following the introduction of the Faster Payments Service. In addition, many major retail groups have stopped taking cheques altogether. Furthermore, unit processing costs are relatively high in comparison to other retail payment instruments, and will rise further as cheque volumes decline.

The three-day interbank clearing cycle and the process for returning unpaid cheques is slow in comparison with other developed countries. The decline in volumes, however, weakens the business case for investing in improvements to clearing cycles. The argument that costs are likely to exceed benefits is particularly powerful for the less automated parts of the clearings, where volumes and values are considerably lower than for sterling cheques.

Therefore the key recommendation of the Working Group was the 'T plus 2-4-6' promise, which was successfully

(1) iPSL are a third party to whom a number of members have chosen to outsource their C&CC processing.

implemented on schedule in November 2007. This was deemed easier than accelerating the sterling cheque clearing, which is already relatively highly automated. The key features are: sterling cheques deposited into a UK current, business or basic bank account will start to earn interest or will count against overdrafts no later than two working days after the cheque is deposited; all consumers and businesses will be able to withdraw funds deposited by cheque into current and basic bank accounts no later than four working days after the cheque is deposited; and they can be sure that the cheque cannot bounce and that the money in their account cannot be reclaimed any later than six working days after the cheque is deposited, unless fraud is involved to which the beneficiary is a knowing party. The '2-4-6' framework represents a core offering: financial institutions remain able to compete to offer shorter timescales for interest and withdrawal. Additionally, a '2-6-6' promise has been implemented for savings accounts. This differs from the '2-4-6' framework in that withdrawals, where they are allowed, can be made six working days after the cheque has been deposited.

Given the constraint on realistically achievable efficiency levels noted by the CWG, particularly given the downward trend in C&CC volumes, the Bank is not actively seeking further strengthening of observance against Core Principle VIII.

The Bank assesses the C&CC to broadly observe Core Principle VIII.

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

The criteria for settlement membership seem suitable for controlling the risks that arise in the system. In particular, the restriction of settlement membership to credit institutions, public authorities and publicly guaranteed undertakings, subject to prudential capital and liquidity regulation provides some assurance that members can meet their settlement obligations in a timely manner, and so prevent the possible disruption to the wider system and public that a failure to settle could cause.

With effect from 1 January 2009, the C&CCC formally implemented minimum credit ratings as additional membership criteria. The minimum ratings are prime short term (ie A-3 from S&P, P-3 from Moody's, F-3 from Fitch) and investment-grade long term (ie BBB- from S&P and Fitch, Baa3 from Moody's). Existing members with credit ratings that deteriorate below the minimum will be required to exit the C&CC within nine months. If, during this nine-month period, their credit rating increases back above the minimum and are maintained there for three consecutive months prior to the expiry of the nine-month period, the requirement for them to withdraw is removed. A prospective member is required to

have credit ratings above the minimum for at least three months before the date at which they apply for C&CCC membership. The systems' concern regarding the amount of settlement risk participants bring to the system has always been apparent, but making this more objective and transparent means the Bank now assesses Core Principle IX as observed.

The Bank now assesses the C&CC to observe

Core Principle IX. The introduction of minimum credit ratings as a membership criterion has strengthened observance of Core Principle IX.

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

The C&CCC has a clear governance structure, with ultimate responsibility for management of the C&CC resting with the Board. The Bank considers the C&CCC's executive to be broadly accountable to the Board, which is composed entirely of settlement member banks. The Board has both the incentives and tools to pursue the interests of the system and its settlement members. The C&CCC Board has an independent chairman, to pursue actively incentives and tools for the benefit of the system and its settlement members. Incentives to pursue the interests of the public and wider economy more generally are less clear. There may be a case for the C&CCC to consider the merits of further independent or public interest representation on the Board. This is mitigated to a certain extent by the presence of independent directors sitting on the Payments Council Board.

In light of changes to governance arrangements in the UK payment systems introduced by the Payments Council, the C&CCC has a contractual relationship with the Payments Council. Under the terms of the contract, the scheme will comply with directions given by the Payments Council's Board in relation to, *inter alia*, strategic issues, innovation and integrity.

Another potential weakness in the system's governance arrangements is that there is no formal relationship between the C&CCC and the third-party infrastructure suppliers that process the majority of cheques, although suppliers are invited to attend some operational committees. Members of the C&CC do, however, enter into bilateral contracts with their suppliers, and must certify annually that processing is conducted in accordance with the C&CCC's various risk controls. The C&CCC audits the initial outsourcing arrangements of members, and conducts an audit review of any high-risk change to processing proposed by members. The C&CCC has indirect rights to audit members' outsourced suppliers, and has exercised these rights for the first time in 2008 following discovery of underreporting of some Service Level Codes by iPSL.

The Bank assesses the C&CC broadly to observe

Core Principle X. Observance of Core Principle X would be strengthened if the direct relationship between the C&CCC, the scheme and third-party processors was more clearly defined. The C&CCC obtaining adequate assurance from third-party processors of their compliance with the system's requirements would also strengthen observance.

Annex G LINK

The LINK ATM Scheme (the Scheme) is the United Kingdom's automated teller machine (ATM) network, that enables its members' customers to withdraw cash from all but a few of the United Kingdom's ATMs, irrespective of the bank at which they hold their account. The Scheme is responsible for setting the rules, practices and procedures. VocaLink Ltd provides transaction switching for members of the Scheme, by routing transaction information from the ATM used by the cardholder to the card issuer's own computer systems.

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

All members sign the *Network Members Agreement*, a formal contract specifying members' rights and obligations, and committing them to abide by the system's rules and procedures. The rules and procedures of the system cover the main aspects of the system's operation, including what would happen to aggregate settlement figures in the event of a settlement member default.

The *Operating Rules* clearly define the obligations of members in all circumstances, increasing robustness of the system's legal basis. Additional assurance of the enforceability of the system's default arrangements might be obtained if the Scheme were designated under the Financial Markets and Insolvency (Settlement Finality) Regulations 1999 (FMIRs), which implement the EU Settlement Finality Directive in the United Kingdom.

The Bank assesses the Scheme broadly to observe Core Principle I. Designation under the FMIRs would strengthen observance.

CP 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.

ATM operators incur both credit and liquidity risk through participation in the Scheme. Rules and procedures exist to manage credit and liquidity risk within the system, with the card-issuing members who bring these risks to the system required to show that they meet appropriate regulatory requirements.

Procedures in the event of a participant insolvency are defined in the rules. A defaulting member would be removed from multilateral settlement, preserving multilateral netting for the membership as a whole and helping protect members against the liquidity risk that would arise if a default caused the entire settlement to fail. The rules make clear that through participation in the system ATM operators bear credit risk equal to their bilateral net position with each card-issuing member.

The Bank assesses the Scheme to observe Core Principle II.

CP 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.

The system's default procedures are adequately defined in the main body of the system's rules, such that participants' obligations within the system should be clear, both under normal circumstances and in the event of default (see Core Principle II).

The system places few restrictions on access (see Core Principle IX). For example, card-issuer participants — who can accrue net debit settlement positions — are not required to be financial institutions. In consequence, participants might face credit exposures *vis-à-vis* non-financial institutions. The Core Principles suggest that criteria that impose few membership restrictions should be coupled with appropriate risk management controls, to ensure that no participant brings an unacceptable level of credit and liquidity risk to the system. The default procedures, which set out members' settlement obligations in the event of default, mean that LINK should have the controls in place to manage these risks appropriately.

LINK nets settlement positions accumulated over weekends and bank holidays, rather than submitting these as separate files on the first following working day as had been done previously, and software is in place to allow settlement figures to be broken down easily by product and by participant.⁽¹⁾

(1) Settlement of the LINK card scheme is combined with settlement of a number of other schemes or 'products' for which VocaLink Ltd provides infrastructure services, such as a mobile phone top-up scheme enabling individuals to top up pay-as-you-go phones at ATMs.

VocaLink Ltd introduced in 2008 a new settlement system capable of monitoring participants' settlement positions intraday. The Scheme is using this functionality to provide early warning of any unusual build-up of debit positions. This increased awareness and monitoring of debit positions and hence settlement risk has strengthened observance of Core Principle III. While there are already certain provisions in the rules, the Bank has encouraged LINK to consider more formally with its members what actions the Scheme could take in the event of a member acquiring a particularly large debit position. This could, for example, include requesting the member to post collateral as assurance they are able to meet their obligation. Clarification of proposed responses would further strengthen observance of this Core Principle.

The Bank assesses the Scheme broadly to observe Core Principle III. Clarification of proposed responses in the event of particularly large debit positions being accumulated would strengthen observance of Core Principle III.

CP 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.

The Scheme is a deferred multilateral net settlement system operating on a T+1 cycle: Scheme members dispense cash from an ATM to customers of other members on day T; settlement of multilateral net positions occurs across accounts held at the Bank of England on day T+1. Although the point of finality of interbank settlement is not defined in the rules of the system, it is likely that settlement would be considered final once postings of net positions had been made to participants' settlement accounts on day T+1.

The Network Members Council (NMC) is informed of delays to settlement and the Scheme discourages late pay-ins, by formally identifying at the NMC any members responsible for a delay to settlement and asking them to report on their plans for preventing any repeat delays.

Until disbandment in January 2009, a small group of Scheme participants were also members of the Funds Transfer Sharing (FTS) group for historical reasons. FTS members 'sub-settled' among themselves and submitted a single multilateral net settlement amount to the main LINK settlement, connecting to LINK via a third party. When FTS was in a net debit position, the main LINK settlement could not complete until FTS members had settled among themselves and the FTS account was funded. This arrangement complicated the system's settlement procedures and sometimes led to settlement delays. The delays caused by FTS were often due to operational issues rather than late settlement by individual FTS members. FTS members decided that the most effective long-term solution was for FTS to disband, which was completed in January 2009. Previous members of FTS now

settle in the main LINK settlement. This should help reduce the risk of delays to settlement and hence strengthen observance of this Core Principle.

LINK has continued to encourage its card-issuing members that hold customer accounts at the Bank for settlement to migrate to reserve accounts in RTGS, also at the Bank. Target balances on reserve accounts typically exceed settlement obligations in LINK. Additionally, customer accounts typically pay less than Bank Rate, making it less attractive to hold a large balance in them. The probability that additional funding will need to be added in the event of an unexpectedly large debit position is hence lower for members using reserve accounts for settlement, reducing the likelihood of delay to settlement. Card-issuing members ineligible for reserve accounts are being encouraged to settle through the reserve account of a member that is eligible. All but one card-issuing members now settle through reserve accounts in RTGS. If, as expected, this reduces the frequency of settlement delays in 2009 then observance of this Core Principle will be strengthened. Card-issuing members who were part of the FTS group will need to settle through reserve accounts in RTGS after FTS disbandment for this strengthening of observance of Core Principle IV to be maintained.

Settlement would also be delayed in the event of a participant's insolvency. Under the procedures in place in the event of the failure of a participant who has a net debit position to make its pay-in, settlement would be delayed until the next banking day. In normal circumstances, however, final settlement occurs on the day of value; these risks are not sufficient to prevent the system from observing broadly this Core Principle.

The Scheme is planning to move to a more automated, SWIFT-based settlement process in 2009. By reducing the possibility of human error in the settlement process, this will strengthen observance of Core Principle IV.

The Bank continues to assess the Scheme broadly to observe Core Principle IV. Completion of the FTS disbandment and migration of members to RTGS accounts for settlement would strengthen observance.

CP 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.

The Scheme has procedures to ensure settlement completes if a system participant fails in a net debit position. Settlement of multilateral net amounts (excluding the insolvent participant) would take place on the next working day following the participant insolvency. This is considered appropriate given the relatively small settlement values involved.

The Scheme *Operating Rules* set out the system's default procedures such that the Scheme's default procedures are robust.

The Bank assesses the Scheme to observe Core Principle V.

CP 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.

Settlement between members takes place across accounts held at the Bank.

The Bank assesses the Scheme to observe Core Principle VI.

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

The system's record of operational availability showed a small decline in 2008. In particular, there were two notable outages affecting the communications network. BT is primarily responsible for this network, it having been outsourced by VocaLink Ltd. The causes of the incidents have been identified and fully addressed, and incidents such as these remain the exception to generally strong performance. The interruption to operations in 2008 has not been sufficient to prevent full observance of Core Principle VII being maintained.

VocaLink Ltd's service obligations to the Scheme are set out in contracts between VocaLink Ltd and members of the Scheme. The service level agreements introduce penalties if obligations are not met. This increases the ability of the Scheme to hold VocaLink Ltd to account for the quality of processing services provided, although the service level agreements would benefit from being more wide ranging and more robust.

Both the Scheme and VocaLink Ltd have structured risk control frameworks, through which risks are identified and monitored. VocaLink Ltd's risk control process is reviewed independently of day-to-day operations by senior management, and the overall framework is subject to independent external audit. The VocaLink Ltd Board has responsibility for determining the overall risk appetite of the framework. The Scheme has its own formal risk framework to monitor and manage risks to the scheme.

Business continuity arrangements are tested regularly and appear to be extensive.

VocaLink Ltd is currently working to strengthen the infrastructure at both the primary and back-up sites that

support Scheme transactions. Changes planned in 2009 will lay the technical foundations necessary to permit continuous processing of transactions over two sites, and moving from a warm back-up site to a live one.⁽¹⁾ The Scheme and VocaLink Ltd continue to consider the merits of the further architectural changes that would be required to move from the current arrangements to continuous processing. A move from warm to live back-up would reduce the impact of a number of operational risks were they to crystallise, strengthening observance of this Core Principle.

The controls underlying the system's risk management framework for managing operational risk are determined by VocaLink Ltd and appear wide ranging and generally well documented. An external SAS70 Audit covering both the payment scheme and infrastructure provides further independent assessment of the performance of controls. The system maintains standards — determined by the Scheme and VocaLink Ltd — which cover, *inter alia*, encryption, authentication and availability. Participants self-certify their compliance with the required standards.

The Bank continues to assess the Scheme to observe Core Principle VII.

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

The number of transactions processed by VocaLink Ltd for LINK Scheme members increased from 972 million in 2000 to 2.8 billion in 2008. However, annual growth in transaction volumes has decelerated from 31.5% to 3.6% over the same period.

Scheme members pay a switching and settlement fee to VocaLink Ltd for the cost of routing transaction information from the ATM used by the customer to the card issuer's own computer systems. This cost-based fee is a small fraction of participants' total fees. System participants also pay membership fees to the Scheme. These fees are comparatively small.

Card issuers also pay a multilateral interchange fee to acquirers on shared ATM transactions that pass through the LINK network. The multilateral interchange fee is a flat-rate fee set centrally by the Scheme, based upon an independent cost survey. There is a separate multilateral interchange fee for branch and non-branch ATM transactions, and only a fraction of the multilateral interchange fee is applicable to non-cash withdrawal transactions, such as account balance enquiries. In December 2006 the Scheme announced agreement, within a Working Group set up by HM Treasury, to

(1) A 'warm' back-up site is one that can be made fully operational after only a short period of time, typically a few hours.

introduce new interchange arrangements that provide incentives to ATM operators to install free-of-charge cash machines in target communities where Government, Members of Parliament and consumer groups consider there to be a risk of financial exclusion.

ATM operators may also impose charges on cardholders using their ATMs. The decision on whether or not to do so is made by individual system participants who are free to compete in this market and is therefore not considered in this assessment.

The Bank assesses the Scheme to observe Core Principle VIII.

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

The system's membership criteria appear objectively justified and are available to all prospective members. The criteria allow open access to the Scheme.

The criteria impose few restrictions on membership, and the Scheme *Operating Rules* should ensure that participants do not bring an unacceptable level of credit or liquidity risk to the system (Core Principle III).

The Bank assesses the Scheme to observe Core Principle IX.

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

The contractual separation of the Scheme from VocaLink Ltd means that LINK has met all of the recommendations of the LINK Access and Governance Working Group that related to the relationship between scheme and infrastructure.⁽¹⁾ VocaLink Ltd is accountable to the Scheme for processing services provided. This has improved the transparency of governance arrangements.

The NMC is chaired by an independent non-executive and is composed of one representative appointed from each of the Scheme members. The NMC has the tools and incentives to pursue the interests of both the Scheme and its members. The Scheme has a Consumer Committee, chaired by the independent Non-Executive Chairman of the NMC, to represent the interest of consumers and advise the NMC on consumer issues that relate to the LINK ATM network and LINK ATM Scheme Rules. While the Committee is purely advisory, the NMC has an obligation to respond formally to any recommendations or questions put to it by the Committee.

The Bank assesses the Scheme to observe Core Principle X.

(1) The LINK Access and Governance Working Group was set up by the Payment Systems Task Force, chaired by the Office of Fair Trading, in July 2005 to consider access and governance issues relating to LINK. The Bank attended the Working Group as an observer.

Annex H UK Maestro

UK Maestro is one of the largest debit card schemes in the United Kingdom. It enables UK Maestro cardholders to purchase goods and services at participating merchants. In certain cases, cardholders can also obtain cash at point-of-sale through the scheme (cashback).

The UK Maestro scheme is managed by S2 Card Services Ltd (S2), a company limited by guarantee. The UK Maestro scheme came into being on 1 July 2004, when the former 'Switch' debit scheme operated by S2 was rebranded following a brand migration agreement between S2 and MasterCard Europe (MCE). Following a separate transaction processing agreement between S2 and MCE, MCE is also now the infrastructure provider for authorisation, clearing and settlement of UK Maestro transactions. In the context of infrastructure provision, MCE is responsible to S2 as a service provider.

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

The UK Maestro rules (the Rules), as set by S2, appear to provide an adequate contractual basis for the system's operation in most areas. UK Maestro Licensees (Licensees) are authorised by MCE, and are not bound to become members of S2. Regardless of their membership status, all Licensees must adhere to the Rules set by S2 according to the conditions of their contract with MCE. S2 can enforce the Rules on Licensees in its capacity as agent for MCE in administering the right to use the Maestro branding in the United Kingdom.

The *Operating Agreement* between S2 and its members, which forms part of the Rules, is a formal contract, which clearly states the obligations of its members under the Rules. Members agree to be bound by their obligations under the Rules, to take all necessary action in response to changes to the Rules, and to comply with all written directions of the S2 Board in relation to the UK Maestro scheme. New members are required to sign a Deed of Accession, which states that they agree to be bound by the terms and conditions of the *Operating Agreement* and the Rules. The *Operating Agreement* also states the services that S2 provides to the members, including granting access to the Rules, and providing advice in relation to the interpretation of the Rules. English law applies to the *Operating Agreement*.

UK Maestro Licensees also enter into bilateral agreements with MCE for branding and transaction processing purposes, tailored

to the services requested by the Licensee, and not seen by S2.⁽¹⁾ An umbrella agreement also applies between S2 and MCE, which states that English law must apply to these individual agreements.

In the event of a default by a Principal Licensee (a Licensee which does not access the scheme through another Licensee), MCE guarantees to complete the multilateral net settlement cycle using MasterCard International's pool of resources and credit lines. But while the Rules define the point by which members will be notified of their daily net settlement position, there is no defined point of final settlement in the Rules. As a result, there is no defined final point by which the key financial risk has transferred from a MCE guarantee to a deposit at the settlement agent. It is possible therefore that the scheme's arrangements for dealing with the insolvency of a member could be subject to legal challenge.

The Bank assesses UK Maestro partly to observe

Core Principle I. UK Maestro could improve its observance by defining the point of final settlement in its rules.

CP 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.

The UK Maestro scheme is a deferred multilateral net settlement system, operating on a 'same-day' clearing and settlement basis.⁽²⁾ Principal Licensees of UK Maestro are not exposed to financial risks from other Principal Licensees in the clearing and settlement process, as MCE undertakes to complete settlement in the event that a Principal Licensee fails to discharge its settlement obligation, using MCE's own resources. Principal Licensees do incur potential financial risks from any Affiliate Licensees (Licensees who access the scheme through the Principal Licensee) that they sponsor. The *Operating Agreement* clearly explains the financial risks arising from Affiliate Licensees that the Principal Licensee is responsible for meeting. However, the Rules do not define a point of final settlement (see Core Principle I for more details).

(1) Note that MCE does not process 'on us' transactions (where the merchant and cardholder use the same Licensee). 'On us' transactions are processed by the Licensee.

(2) The clearing and settlement cycle is same-day. However, the time from initiation of the transaction at the point of sale to settlement will normally be at least one day, as there is a short time lag between the initiation of the transaction, and the merchant uploading the details to their bank.

The Rules explain that following the settlement of a transaction, an acquiring Licensee (a merchant's bank) may be later subject to a 'chargeback', where an equal and opposite transaction is applied by an issuing Licensee (a cardholder's bank). The Rules clearly specify both the circumstances in which a chargeback is permitted (for example, fraud performed on a 'Chip and PIN' card when the merchant was not 'Chip and PIN' compliant), and the procedures and timescales for initiating, handling and settling a chargeback, as well as procedures for resolving a dispute between an issuing Licensee and acquiring Licensee regarding a chargeback.

The Bank assesses UK Maestro broadly to observe

Core Principle II. UK Maestro could improve its observance by defining the point of final settlement in its rules.

CP 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.

As UK Maestro transactions are cleared through MCE platforms, MCE undertakes to complete settlement if a Principal Licensee fails to meet its settlement obligations. This essentially eliminates credit and liquidity risks between the participants, or between the participants and S2 as UK Maestro governance authority.

MCE assesses the risk that Licensees pose to it using MasterCard International's member risk assessment framework. Licensees are required, among other things, to provide current audited financial statements and meet minimum credit ratings. Where a Licensee is deemed to pose an excessive credit or liquidity risk to MCE, MCE can take measures to reduce the size of the potential risk from the Licensee.

UK Maestro settlement arrangements operate on a 'direct debit' basis; Licensees are required to pre-fund their settlement accounts, except where they have sufficient overdraft facilities on their accounts as part of a commercial relationship with the settlement agent, Deutsche Bank. In the event of a Principal Licensee defaulting, MCE uses first its overdraft facility at Deutsche Bank, and then MasterCard Incorporated's pool of liquid resources to complete settlement (and repay the overdraft). There are no formal penalties for a failure to pre-fund accounts.

The Bank assesses UK Maestro to broadly observe Core Principle III.

CP 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.

The Bank does not have sufficient information to conduct an assessment of UK Maestro against Core Principle IV.

CP 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.

As processor of transactions between Licensees, MCE guarantees to complete settlement in the event of operational problems or default by a Principal Licensee. It does this through overdraft facilities available to it at the settlement agent and access to MasterCard Incorporated's US\$1.4 billion pool of liquid resources (as at end-September 2006) available for managing operations. Given Principal Licensees' typical and peak settlement positions, this pool should be sufficient to cover the UK Maestro Principal Licensee with the largest net debit settlement position. However, in the event that this pool was not sufficient, for example if the Principal Licensee also had a large net debit position in the MasterCard UK credit card scheme, and/or there had been other recent member defaults which had depleted the pool, MCE has access to MasterCard Incorporated's legally committed US\$2.5 billion agreed credit facility in order to complete settlement.

The Bank assesses UK Maestro to observe Core Principle V.

CP 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.

During 2008, the settlement service provider migrated from HSBC to Deutsche Bank. Settlement is performed on a multilateral net basis over accounts held at Deutsche Bank. While this is not a central bank asset, Deutsche Bank is a highly credit rated institution.⁽¹⁾ In addition, positive balances held at Deutsche Bank during the settlement process are relatively small compared with positive balances held at settlement agents in other payment systems. The Bank therefore believes that these commercial assets provide an appropriate settlement asset for the UK Maestro scheme.

The Bank assesses UK Maestro to broadly observe Core Principle VI. However, the Bank sees little benefit from a risk reduction perspective in UK Maestro seeking to strengthen observance of Core Principle VI further.

(1) For example its Moody's long-term rating was Aa1 as of December 2008.

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

MCE is responsible to S2 for the authorisation, clearing and settlement platforms on which UK Maestro operates. A system specification document details the responsibilities of MCE to S2 as a service provider, the service level objectives and targets that MCE is expected to meet, and arrangements and responsibilities for monitoring and reviewing performance against these targets. The objectives include minimum operational availability of the intermember network, transmission time targets for the payment authorisation system, and targets for the production and transmission of clearing files to members. In the event that MCE fails to meet these targets, MCE is obliged to correct the fault and arrange additional resources as necessary to meet the service levels at no cost to S2 members. S2 also specifies service targets for Licensees, covering issues such as availability of the Licensees' authorisation systems, and notice periods to S2 and MCE of planned system downtime.

As service provider, MCE is also responsible for business continuity arrangements for the systems. MCE has worked hard to ensure that there are no single points of failure in the systems. For critical systems there are strong contingency arrangements in place, with both duplicate servers at the primary site, as well as a distant secondary site. Contingency arrangements exist in case MCE is unable to deliver clearing files to members by the usual time. Contingency arrangements are regularly tested and appear to be extensive.

The Bank therefore assesses UK Maestro to observe Core Principle VII. However, it must be noted that this assessment focuses solely on the authorisation, clearing and settlement process.

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

Debit cards in general are one of the most popular payment instruments in the United Kingdom by volume. In 2007, there were approximately 7.4 billion debit card transactions, including 2.6 billion using the Maestro scheme. Where online authorisation of a payment is conducted, the response time of the MCE authorisation system⁽¹⁾ is in nearly all cases less than a second. The recent transfer from magnetic stripe and signature authentication to 'Chip and PIN' authentication, co-ordinated by APACS, completed smoothly. Maestro cards can also be used for payments abroad, although for these transactions, the rules of MCE apply rather than the S2 scheme rules. This suggests that the UK Maestro system is practical for its users.

In terms of cost efficiency, the costs of processing transactions are balanced between Licensees through a Payment Guarantee Charge (PGC). This is similar to what is known in other systems as an 'interchange fee'. PGCs are negotiated and agreed bilaterally between Licensees, rather than set centrally, and are not seen by S2. However the Rules do include arbitration procedures that must be followed in the event of deadlock in these negotiations, and provide interim PGC rates while an independent arbitrator resolves the dispute.

The Bank assesses UK Maestro to observe Core Principle VIII.

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

Under the agency and licensing agreement between S2 and MCE, MCE (as brand owner) is responsible for licensing the Maestro brand in the United Kingdom, although S2 is currently appointed as Sole Agent to administer licensing. MCE will currently grant licences to entities that meet the relevant eligibility criteria, the most important of which are to be a body duly authorised and regulated as a credit institution in a country in Europe, or at least 90% owned by such a body. MCE then applies MasterCard International's member risk assessment framework, designed to assess the potential risk that the Licensee could pose to the system. Less creditworthy institutions are eligible to join, provided that they are able to meet MCE's minimum financial standards, or can offer other protective arrangements to cover the credit and liquidity risks that their membership poses to MCE, as settlement guarantor. The MasterCard International member risk assessment framework is not published. However, Maestro applicants are given a range of information when applying to join the scheme. The Rules also explain the processes and procedures for Licensees to withdraw from the scheme.

Article 28 of the EU Payment Services Directive, which defines right of access to payment systems, may require MCE to make some changes to their access arrangements.⁽²⁾ In particular, MCE will no longer be allowed to prevent an institution participating in its system based on factors such as the type of institution applying. MCE will still be able to specify criteria that must be met, however, such as the settlement risk the institution will bring to the system. Once the changes to the criteria have been made, the Scheme's observance of this CP will be strengthened.

In terms of other financial risks, the Rules explain that S2 members are expected to contribute to the costs of running S2, and define the basis on which the costs are divided

(1) This time is defined as the transmission time between the acquirer and MCE, MCE and the issuer, the issuer and MCE, MCE and the acquirer, plus the MCE processing time.

(2) www.eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=Oj:L:2007:319:0001:01:EN:HTML.

between members of the scheme. The Rules also state the fixed costs that Licensees incur in the case of chargebacks under certain circumstances, and for duplicate or erroneous transactions. For many services, Licensees are free to agree charges bilaterally; however, the Rules state a set of standard charges if Licensees are unable to agree.

Once an institution has obtained a Maestro licence to issue cards or acquire merchants in the United Kingdom, it automatically participates in the UK Maestro scheme as a Licensee. It need not become a member of S2, although it must abide by the Rules set by S2.

The Bank assesses UK Maestro to broadly observe Core Principle IX. Observance could be strengthened by having a publicly disclosed set of objective criteria for participation in the scheme.

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

S2 is responsible both for setting and modifying the rules of the UK Maestro scheme. S2 is independent of both MCE and MasterCard Members Forum UK Ltd.⁽¹⁾ It is able to determine Rules independently from MCE, although with a proviso that new rules do not discriminate against International Maestro cardholders, damage the Maestro brand, or undermine the international Maestro rules.⁽²⁾ There are also certain circumstances under which this proviso does not apply, such as setting interim PGCs, where S2 has full control of the Rules. S2 is responsible for notifying MCE of rule changes, and MCE is given 30 days to object.

The UK Maestro scheme is governed by the S2 Board, which is responsible for setting and modifying its rules. Members receive voting rights in proportion to their transaction volumes; these rights are recalculated annually. Each member of S2 (or member group) with at least one of the 100 votes is an 'entitled' member, and allowed to appoint one director to the S2 Board. However, since the Board is limited to twelve members, if there are more than twelve members with at least one vote, only the eleven members with the highest number of votes appoint directors. The remaining members jointly appoint a 'minority director'.

Reporting to the S2 Board is the Business Management Committee (BMC), which is responsible for managing the UK Maestro operations, and agreeing and implementing business requirements, within policies established by the Board. The BMC delegates certain elements of its responsibilities to one of four committees (rules and compliance, fraud, operational, technical), which all report to it. All of the committees consist of nominated representatives of members. The powers, duties, responsibilities, rules and procedures of each of S2's committees are described in the constitutional rules and

procedures under which the committees must operate, and the Terms of Reference for the committees, all of which are included in the UK Maestro *Operating Regulations*. A separate document defines detailed operating rules and procedures.

The clear responsibilities and reporting lines of committees to the Board, and limited size of the Board, assist in ensuring governance arrangements are effective, accountable and transparent. However, the voting rights structure, and the composition of committees and the Board, may not be appropriate in the future if a number of new small members join the scheme and principal membership increases to more than twelve, as planned. This is because the scheme would then become more under the control of the larger incumbent members. S2 has indicated to the Bank it would review the governance arrangements if it was felt that with a change in membership structure the larger members had excessive control in the scheme.

Given the current arrangements and limited membership of the scheme, **the Bank assesses UK Maestro to broadly observe Core Principle X.**

(1) MasterCard UK Members Forum Ltd manages the MasterCard credit card scheme in the United Kingdom.

(2) The fact that UK Maestro rules differ from the international Maestro rules will not itself count as 'undermining' them.

