

Annexes to Payment Systems Oversight Report 2006

Detailed assessments of payment systems

February 2007 | Issue No. 3



BANK OF ENGLAND



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The CPSS 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.

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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 consists of two systems: CHAPS Sterling and CHAPS Euro, which — as their names suggest — provide settlement facilities for sterling and euro payments respectively. The following assessment covers both systems. Where the Bank assesses observance of the Core Principles to vary between the two, this is identified.

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 is designated under the *Financial Markets and Insolvency (Settlement Finality) Regulations (1999)*. 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. Protections afforded under the UK settlement finality regulations extend equally to CHAPS Sterling and CHAPS Euro payments.

CHAPS members' relationship with the Bank of England, as provider of settlement accounts, is governed by contracts (the *RTGS Mandate 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 systems. However, CHAPS members do not sign formal contracts or acknowledgements committing themselves to abide by the *CHAPS Rules* and decisions of the CHAPS 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. However, the decisions to introduce such contracts for BACS and the C&CC suggest that the situation for CHAPS should also be reviewed.

During 2006, CHAPS Co has largely completed work to confirm and provide the Bank with legal opinions that where settlement membership is held by a branch of a bank incorporated overseas, these members have the authority to commit themselves to abide by the CHAPS scheme rules, and

that the home-country legal system of the parent bank would not impede the member's ability to fulfil its obligations in CHAPS. This legal work complements the Bank's own requirement for legal opinions regarding the enforceability of contracts governing the operation of RTGS settlement accounts and the supply of intraday liquidity by the Bank to all overseas/non-UK incorporated holders of RTGS settlement accounts.⁽¹⁾

Reflecting work to confirm legal capacity, as well as a desire by the Bank for a consistent approach to assessment of systems designated under the UK settlement finality regulations, **the Bank assesses CHAPS to observe Core Principle I.**

Notwithstanding this improved assessment, the Bank continues to note the case for CHAPS Co and its members to review the merits of establishing formal contracts.

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, CHAPS Co 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, in 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

(1) All CHAPS settlement members must hold such an account.

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 (Core Principle III).

Formal responsibility for determining the *Rules* rests with the CHAPS Co Board. The Board has delegated responsibility to the CHAPS Co 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 of England. If there were insufficient liquidity in the system as a whole (or it were 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, being delayed. 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. For CHAPS Euro, intraday credit is further limited to approximately €3 billion in aggregate each day. However, members are able to raise additional liquidity within the euro area and transfer this through TARGET to CHAPS Euro. 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. In addition, throughput guidelines (the requirements for banks to settle certain proportions of their total payments by certain times),

are in place, partly to stop settlement banks 'hoarding' liquidity. In extreme scenarios, the Sterling Liquidity Contingency Regime can be invoked if there is a risk that liquidity might get drained from the system because a member is unable to send payments (though it can still receive).

An additional liquidity-saving feature of CHAPS enables members to submit CHAPS Sterling 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.

Evidence suggests that the procedures currently in place are effective for controlling liquidity risk. Bank analysis continues to show that system participants have ample liquidity to cope with temporary operational difficulties affecting even the largest members, a situation which Money Market Reform (**Box 2**) has further improved: CHAPS remains a liquidity rich system.

The previous *Report* noted some deterioration in member throughput performance. This appears to have continued in 2006, with a few CHAPS members consistently breaching throughput requirements. But as the previous *Report* also noted, this deterioration appears to reflect structural changes in the distribution of when CHAPS payments are made, rather than member liquidity constraints. Indeed, following MMR, any liquidity constraints should have eased. CHAPS Co procedures now provide an opportunity for members breaching throughput requirements to demonstrate they have sufficient liquidity available to meet those requirements had they needed to release payments. Later in 2007 CHAPS Co will consider whether deeper changes to throughput requirements are warranted. The Bank continues to view these requirements as a key control for liquidity risk.

The Bank has continued to encourage CHAPS Co to explore practical and efficient ways of reducing potential settlement risk that can arise in RTGS bypass mode (Core Principle V).

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

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 relevant 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 Sterling's first and second levels of contingency proved inadequate and bypass mode were 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. During 2006 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. CHAPS Co has initiated work to better understand the operational implications of multiple settlement cycles in bypass mode. But given the lack of progress in this area over the previous two years, the Bank would like CHAPS Co to take this workstream forward as a priority during 2007.

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 Sterling and CHAPS Euro 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' highly tiered membership structure restricts to a limited number of banks.

UBS' joining in 2007 is thus a welcome development. And insofar as it has reduced the resource cost of CHAPS Sterling membership, MMR could encourage other banks to consider joining.

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' security controls and measures appear to be effective. The system's record of operational availability is good. Contingency procedures are tested regularly and external audits of both CHAPSCo's control framework and of the Bank's operations take place every year.

CHAPS' 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 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 (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 for eleven of the twelve months in 2006, compared to ten months during 2005. 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 expediently. 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 CHAPS 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, CHAPS Co will liaise with the member and monitor implementation of remedial changes against an agreed plan.

Procedures supporting the resiliency and recovery capacity of CHAPS Co and the RTGS infrastructure are extensive. Initiatives such as the Tripartite Resilience Benchmarking Project have also shown these 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' contingency arrangements and, if necessary, look for ways to strengthen them further. Given that bypass mode can provide CHAPS Sterling with a further layer of contingency, it is important that the associated outstanding issues concerning settlement risk are addressed.

An area where the Bank would like to see further review and testing during 2007 concerns the fax-based contingency arrangements for settlement, established to accommodate problems affecting the ability of CHAPS members to connect to SWIFT. Whilst the likelihood of such connectivity problems, particularly affecting multiple members, is very low, the disruptive impact on the operation of CHAPS and settlement of critical payments could be large. Consequently, it remains important to test contingency arrangements designed to mitigate such an impact.

Payment schedule contingency arrangements enable members to bilaterally exchange payment information via fax, and regular testing has shown these arrangements to be robust. But there remains a need for similarly regular testing of members' ability to submit corresponding settlement instructions to the Bank via fax. Problems with SWIFT connectivity encountered by RTGS on 12 February 2007 suggested members are able to prioritise certain systemic payments — eg CLS pay-ins — for settlement in this fashion. However, testing of these contingency arrangements should extend to obtaining assurances that members have the operational capacity to prioritise other payments with systemic characteristics for fax-based settlement. Those payments will typically be of large absolute value and exhibit a high degree of market interdependence (eg interbank loans for liquidity management purposes).

The Bank assesses CHAPS to observe Core Principle VII and continues to encourage CHAPS to reinforce further its contingency arrangements.

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). Remunerated reserves, introduced by MMR, have increased the range of liquidity sources available to CHAPS Sterling members and earlier changes to allow queuing of payments have introduced further liquidity efficiencies (Core Principle III).

Going forward, introduction of the new Faster Payments service is expected to result in reduced CHAPS Sterling volumes, potentially increasing the per-debit item cost of making RTGS payments (Section 2.1). However, the *value* of payments using the system should be largely unaffected, insofar as there are 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, CHAPS Co and the Bank will need to carefully consider their response to the cost implications of volume migrating to Faster Payments. One response could be to seek convergence of the RTGS and Faster Payments infrastructures. CHAPS Co is well placed to shape that debate through consideration of its future requirements of a RTGS infrastructure, which is being articulated through the company's RTGS Regeneration and Renewal workstream.

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. These are defined in the Rules and are available on the CHAPS website. Membership is restricted to financial institutions that hold sterling and/or euro 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.

Membership of CHAPS Euro is subject to additional requirements, as set out in Article 3 of the *TARGET Guideline*.

The Bank will normally be prepared to provide a settlement account to any member of a payment system for which it is prepared to settle. 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⁾ All banks holding settlement accounts are part of the reserves scheme introduced by MMR, and have access to standing facilities.

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 CHAPS Co 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 the previous *Oversight Report*, the appropriateness of this fee and therefore continues to encourage CHAPS Co 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.

The CHAPS Board is composed entirely of settlement member 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 of England provides one of the Board directors.

In light of changes to governance arrangements in the UK payment systems, to be introduced by the Payments Council (**Box 4**), CHAPS Co will have 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. In essence therefore, introduction of the Payment Council could go some way to addressing concerns noted in the previous *Report* about the degree to which CHAPS Co's own objectives accommodate systemic risk considerations, alongside those of other stakeholders.

Because the Payments Council and associated governance changes have yet to be implemented, **the Bank assesses CHAPS broadly to observe Core Principle X.** The Bank will review this assessment, which is unchanged from last year, in light of experience with the Payments Council and CHAPS Co's relationship with that body.

(1) Bank of England (2002) *Bank of England Settlement Accounts*, available at: www.bankofengland.co.uk/financialstability/paymentssettlementsystems/pdf/boesettl_eaccs021128.pdf.

Annex B CREST

CREST is the United Kingdom's securities settlement system, providing a Delivery versus Payment (DvP) settlement service for UK securities.

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 all three, differentiating between them as necessary.⁽¹⁾ 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 CRESTCo is responsible; and the overall payment arrangements supporting securities settlement, which are a collaboration between CRESTCo, the Bank of England (for sterling and euro settlement) and the CREST settlement bank community.

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

There are no material changes to report in respect of this Core Principle compared to last year's assessment. CREST is designated under the *Financial Markets and Insolvency (Settlement Finality) Regulations (1999)* (the 'UK settlement finality regulations'), which implement the EU *Settlement Finality Directive* 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. The protection provided by the UK settlement finality regulations also extends to the CREST settlement banks' arrangements for taking collateral to secure their customers' debit caps. There are bilateral and multilateral contractual arrangements between CRESTCo, the Bank and the CREST settlement banks governing the operation and provision of the DvP payment arrangements in sterling and euro (including the operation of settlement accounts at the Bank of England 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. Even in the case of CREST settlement banks that are the branches of banks incorporated outside the European Economic Area, CRESTCo has obtained legal opinions 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 bank's ability to fulfil their obligations. **The Bank assesses the CREST sterling and CREST euro 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 CRESTCo'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 assesses the CREST US dollar payment arrangements broadly to 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.

There are no material changes to report in respect of this Core Principle compared to last year's assessment. 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 and euro payment arrangements, in the RTGS documentation (specifically the *RTGS Reference Manual*). CREST documentation also describes in detail the

(1) While the assessment focuses on the payment arrangements between the fifteen CREST settlement banks, these settlement bank arrangements are underlain by payments between over 44,000 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.

operation of members' Cash Memorandum Accounts (CMAs) and the management of CMA debit caps. This documentation is regularly updated. The US dollar CREST settlement banks are investigating with CRESTCo the possibility of improving that payment mechanism to reduce the size of the interbank exposures that the mechanism generates and to remove the potential for uncertainty about when finality is achieved (see Core Principles III and IV). **The Bank assesses CREST's 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.

There are no material changes to report in respect of this Core Principle compared to last year's assessment. Because sterling and euro CREST settlement banks settle their obligations across central bank accounts in real time, these two payment arrangements generate 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. CRESTCo 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 settlement finality regulations — see Core Principle I). The extent to which uncollateralised credit is granted depends on the terms of the agreement between each settlement bank member and its customer, with responsibility falling clearly to the parties who would bear any losses in the event of default.

Liquidity risk could arise in the sterling or euro payment arrangements if settlement members were unable to raise the liquidity to settle transactions, or unable to repay intraday liquidity provided by the Bank of England. Liquidity can be raised in CREST either by transfer from CHAPS, or, in the case of CREST sterling, by self-collateralising repo to the Bank of England. 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 over 150 CREST settlement cycles each day. The rules on generating and transferring liquidity are set out in the *RTGS Reference Manual*.

By value, approximately 98.5% of CREST transactions settled on their intended settlement date in 2006. There is no indication that liquidity shortages are the cause of the failure to settle the remainder. 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 assesses CREST sterling and CREST euro payment arrangements to observe Core Principle III.**

The payment arrangements supporting CREST US dollar settlement are deficient in a number of respects as regards this Core Principle. 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. In general, settlement banks have arrangements with their clients which would allow them to claw-back 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.

Although US dollar settlement values remain modest relative to those for sterling settlement, they have risen significantly over the past four years, increasing from a daily average value of US\$0.5 billion until end-2003 to approximately US\$2.25 billion in June 2005. Following further step changes in 2006, values have averaged around \$9.5 billion per day.

The Bank assesses the current US dollar payment arrangements partly to observe Core Principle III. CRESTCo has established a small working group to find a solution which would significantly and permanently reduce the risks arising from these arrangements.

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 last year's assessment. For sterling and euro 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 is determined by a time-based parameter agreed by CRESTCo and the Bank. There are between 150 and 200 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. The level of observance may improve when changes to US dollar settlement are implemented. **The Bank assesses CREST sterling and CREST euro payment arrangements to observe Core Principle IV, and the US dollar payment arrangements partly to 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.

There are no material changes to report in respect of this Core Principle compared to last year's assessment. Interbank settlement in both the sterling and euro 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. For the US dollar payment arrangements, the interbank settlement involves transfers of funds between major US correspondent banks. **The Bank assesses CREST sterling and CREST euro payment arrangements to observe Core Principle VI, and the US dollar payment arrangements partly 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.

CREST's sterling and euro payment arrangements rely on the DvP link between CREST and the Bank of England's accounts. If the link were interrupted, or in the event of an operational failure of the Bank's RTGS system, CREST is able to continue settling in 'recycle mode'. This involves CREST continuing settlement using the last verified set of settlement bank

liquidity postings, with a contingency facility for banks to top up and draw down such liquidity. 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 Single Settlement Engine in August 2006, CREST experienced a number of operational problems. In the period August to October 2006, settlement outages totalled nearly 900 minutes, including seven settlement days on which outages lasted over one hour. Settlement availability fell to 96.7% in October 2006 and, while less frequent, there were further operational problems in November, December and January. These problems caused considerable inconvenience for some members, and, on occasions, significant extensions to the settlement day.

CRESTCo have processes in place to monitor, review and follow up these operational incidents, and have implemented permanent fixes to address the immediate issues. In addition, Euroclear have undertaken a Post Implementation Review, highlighting the key lessons for future system changes and launches. In particular, the recent problems highlight lessons for change management, and in particular for the planning and execution of trialling including user involvement, for resourcing and for crisis communication.

Reflecting recent operational incidents, **the Bank assesses CREST's payment arrangements broadly to observe Core Principle VII.** The Bank will review this assessment once the changes identified in the Post Implementation Review to address the underlying weaknesses have had time to bed down. The Bank will expect to see evidence that the lessons arising from CREST's migration to the SSE are being taken on board in future system changes.

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 44,000 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 2006, approximately 98.5% of trades by value (approximately 90.6% by volume) settled on their intended settlement date. The liquidity transfer mechanisms supporting the sterling and euro payment arrangements

appear practical, and the self-collateralising repo mechanism enables settlement banks to economise on the liquidity devoted to the sterling payment arrangements. **The Bank assesses CREST's 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 CRESTCo'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 CRESTCo, 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 and/or euro embedded payment arrangements without also being a member of CHAPS. There are, however, no participation criteria publicly disclosed by the CREST settlement bank community. While CRESTCo's criteria for participation are objective and publicly disclosed, the Bank does not see any justification for existing settlement members' having a theoretical veto over other banks' seeking to become CREST sterling or CREST euro settlement banks. **The Bank assesses the embedded payment arrangements partly to observe Core Principle IX.**

CRESTCo plan to implement a new rule designed to ensure that all the participation criteria which apply to CREST settlement banks are publicly disclosed. It is hoped that this will be published early in 2007. This should strengthen observance of Core Principle IX.

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

As mentioned under Core Principle I, the provision of sterling and euro payment services is governed by a variety of

contracts between CRESTCo, the Bank and the individual members of the payment systems. These detail which elements of the sterling and euro payment arrangements each party is responsible for, and are supported by external audit, with both RTGS and CREST subject to SAS 70 reporting.

The governance arrangements of CREST as a system have a number of desirable features, in particular the involvement of independent Board directors within the Euroclear corporate structure. These help maintain accountability of the CRESTCo executive and ensure that wider public interest objectives are considered. In recent years there have been a number of structural changes to the Euroclear Group with the potential to affect CrestCo directly. These include the corporate restructuring in 2005 and, more recently, the SSE introduction. Changes on such a scale inevitably test governance arrangements. The operational problems following the SSE launch highlighted a number of areas where the management of change within the Euroclear Group both before and after the launch needed improvement. Change management is an important element of governance. The Post Implementation Report mentioned above identified and has sought to address those problems.

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 the Euroclear group's policy to ensure a high degree of user-governance in the various national markets where Euroclear provides settlement services.

The settlement banks, CRESTCo and the Bank have held meetings co-ordinated by the Association for Payment Clearing Services (APACS) to discuss operational and business issues related to payment systems. In February 2007 CRESTCo established a new Settlement Bank Committee to act as a dedicated forum for discussion of issues relating to the interbank payment arrangements. The Bank welcomes this development. In addition, it will be important that CRESTCo and Euroclear actively involve non-settlement bank members in discussions of future system changes. Since it is too early to assess the effectiveness of the new Settlement Bank Committee, **the Bank continues to assess the payment arrangements partly to observe Core Principle X.** The Bank will review this assessment once further evidence is available.

Annex C LCH.Clearnet Ltd

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 1% of the average daily flows in the UK PPS, the risks present within the 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)* implementing the EU *Settlement Finality Directive* in the United Kingdom (the 'UK settlement finality regulations'). 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.**

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.**

(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 central counterparty, 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 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 central counterparty does not have to use intraday credit lines at the concentration bank in order to meet its obligations.

LCH.Clearnet Ltd introduced a new SWIFT messaging type in 2006 to allow the straight-through processing of transfers from the PPS banks to the concentration bank and, as a result, there has been a reduction in the number of banks that miss the deadline for sterling pay-ins. The Bank welcomes the reduction in breaches although it remains concerned that a number of banks continue to miss the deadline, particularly for euro pay-ins. The *PPS Agreement* includes procedures for LCH.Clearnet Ltd to follow when faced with a PPS bank that consistently exceeds the two hour deadline and, although the procedures do not include financial penalties, they do provide for the termination of a bank's participation in the PPS.

LCH.Clearnet Ltd exercises its discretion in deciding the extent to which these procedures are applied. While some discretion may be necessary, the level of application of the procedures

has so far not achieved full compliance with the terms of the *PPS Agreement*. The Bank would thus encourage LCH.Clearnet Ltd to follow up breaches by PPS banks fully in accordance with the provisions available to it within the *PPS Agreement*.

The Bank assesses the PPS broadly to observe Core Principle III. 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.

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 some currencies this will not take place until the following day, which will be the next value date for that currency.

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. These latter transfers are made via CHAPS 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. 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, which is 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, Japanese yen, Norwegian krone, New Zealand dollar 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 5% (£122 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.**

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 credit lines with its PPS bank sufficient 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 Standard & Poor's.

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. So the concentration bank plays a key role in the PPS arrangements.

The Bank of England 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 of England via CHAPS. 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 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 transferred through a real-time gross settlement system, and then being held in the form of central bank account balances free of credit risk.

LCH.Clearnet Ltd has continued investigating potential ways to reduce US dollar settlement asset risk over the past year. If it proves impossible or impractical for LCH.Clearnet Ltd to hold US dollar funds in the form of central bank balances, LCH.Clearnet Ltd should then investigate whether steps could be taken to reduce further the risk of using a commercial bank settlement asset.

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 partly to observe Core Principle VI, and the US PPS broadly to observe Core Principle VI. For transfers in other currencies, the Bank assesses the PPS broadly to 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 very small 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 and the CHAPS 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, 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, as noted elsewhere in this *Report*. In addition, LCH.Clearnet Ltd can make calls in the PPS system in the United States, which uses the Fedwire system. 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.**

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.**

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.**

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 User Consultative Committees 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. The Bank will continue to monitor any changes to risk management and governance procedures following the review of Group strategy undertaken by the new Group Chairman and CEO. **The Bank assesses the PPS to observe Core Principle X.**

(1) www.lch.com/risk_and_margining/pps_bank_requirements.asp.

Annex D BACS

The BACS payment system provides processing of bulk electronic automated payments. Its principal products are the Direct Debit, Direct Credit, and standing order payment instruments. The payment system is owned by BACS Payment Schemes Limited (BPSL), the members of which outsource provision of core processing services to Voca Limited, 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 was designated under the *Financial Markets and Insolvency (Settlement Finality) Regulations* (1999), which implemented the *EU Settlement Finality Directive* (1998) in the United Kingdom in December 2005. Following designation, 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.

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 Funding and Collateralisation Agreement (LFCA, implemented in May 2005 and discussed in last year's 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.

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 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 those risks. Whilst the LFCA has significantly reduced settlement risk in BACS (and the C&CC) it has not eliminated it completely, 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 cap debit positions within BACS is now available through the NewBACS processing platform and work has commenced to investigate the practical issues around the introduction of debit caps. NewBACS also provides the functionality 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. Removing the affected member's intraday exposures on the day of default would reduce further the probability of the affected member's settlement obligations being larger than the liquidity committed under the LFCA.

Completion of work on debit caps and regression could contribute to managing such risks.

The Bank assesses BACS broadly to observe Core Principle III. Implementation of further innovations described above 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 BACS occurs on the day of value. Although the point of finality is not defined in the BACS rules, it seems likely 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. 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. But for the LFCA *not* to ensure prompt final settlement would require an historically large net debit position on the part of the affected member, something which the Bank considers to be well outside normal circumstances.

The Bank assesses BACS to 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.

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.

The introduction of the Capital Requirements Directive (CRD), on 1 January 2007 requires a short memorandum to be added to the LFCA by 1 April 2007 (three months after the CRD comes into force in the United Kingdom) to keep the LFCA valid. Discussions on the principles of how members could calculate their requirements for Risk Weighted Capital charge under the CRD continue within the Settlement Risk User Group (SRUG). Agreement has been reached that members will discuss and agree their own approach with relevant FSA supervisors, managing their own exposures.

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 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 very 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.**

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 of England.

The Bank assesses BACS 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.

BPSL 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 will deliver benefits for all members and users of the system, particularly in relation to reducing operational risk in a default scenario.

Voca has well-established operational risk controls relating to processing of BACS payments. Operational performance against agreed standards is monitored by Voca management and the BPSL Operations and Development committee. An external SAS70 Audit covering both the payment scheme and infrastructure provides further independent assessment of the performance of controls against control objectives.

Cumulative delays to settlement caused by members were significantly higher during 2006 than during 2005 but remained generally of very short duration. The majority of these delays could be attributed to just two members and the underlying causes for the ongoing problems have been investigated with the members and BPSL in order to reach resolution.

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

BPSL members are responsible for their own processing arrangements in BACS and have all established contracts with Voca Ltd for the provision of core processing services. Voca's processing performance is measured against target levels defined in the service level agreement (SLA) with BPSL members and is reported on a monthly basis.

Since the successful delivery of the NewBACS infrastructure renewal programme in July 2006, the existing SLAs are now being reviewed with Voca and the members to reflect several months of live operation. One example is the current SLA requirement for BACSTEL-IP to exhibit 99.5% availability each month (which amounts to submission unavailability for just in excess of two hours per month). This SLA is set at a lower level than some other payment systems, where SLAs can range from 99.95% to 99.9999%. Some minor changes are expected to be made to the SLAs during 2007 and should tighter operational controls be introduced this may deliver greater observance of CP VII.

Operational performance has remained strong since the implementation of NewBACS with delivery of processed output to members being completed to schedule in every month. The availability of payment file submission channels was typically in excess of SLA-defined minimum levels. In support of its operations, Voca has continued to enhance its extensive business continuity arrangements which are tested regularly, including switching of payment processing from primary to secondary sites.

It is important for member banks to understand the potential implications of a significant delay to output from Voca. 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. Agreed procedures for handling such a backlog of payments are being devised and are expected to be implemented within 2007. This work stream is essential to mitigate any operational problems arising, particularly at a member level or at the central infrastructure. These procedures would help improve the operational robustness of BACS and equally, they would enable member banks to have greater certainty regarding the impact of a significant processing outage on their customers. The Bank considers this work on managing a backlog of payments as one of the key priorities for BPSL in 2007.

The Bank assesses BACS broadly to observe Core Principle VII. Clear confirmation that member banks have in place processes to handle a backlog of payments, would 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 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 is scheduled to be implemented by the industry in late 2007 and there will be clear associated net benefits to the UK economy, users and member banks through reduced settlement risk.

PSTF's Industry forecasts indicate that such a service could initially attract up to 10% of existing BACS volumes. Although this could grow, it suggests current clearing cycles will be of appropriate duration for those payments which do not migrate from BACS to the new service. That said, reduction of the current BACS clearing cycle could still deliver risk-reducing benefits to member banks and practical benefits to users. These benefits, weighed against the cost of necessary changes to members' systems, could be usefully considered by BPSL in greater detail.

Investigations have begun into whether the current three day BACS settlement cycle could be shortened. The current draft of the Payment Services Directive, which is expected to be adopted in 2007, is expected to introduce a requirement that direct credits and direct debits are credited to the payee's payment account by the end of the next working day after the point in time of receipt, which would require BPSL to deliver T+1 processing for all BACS payments that have not migrated to Faster Payments.

The Bank assesses BACS partly to observe Core Principle VIII. Although beyond BPSL's control, the successful implementation of a faster payments service for electronic retail payments would strengthen observance. Work to reduce existing BACS clearing cycles would also strengthen observance, if such a reduction can 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, BPSL restricts

settlement membership to credit institutions which 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 whom such positions may be unobservable, BPSL could consider arrangements to relate collateral pledged to the credit ratings of applicants.

BPSL (and also C&CCC) have recently been considering how to deal with a settlement member whose credit quality deteriorates to an extent that brings a high level of financial risk to the multilateral settlement. Arrangements could be established to determine the amount of additional collateral pledged by a member experiencing a rapid deterioration in its credit rating. This review is expected to complete in 2007.

Following the *OFT Payment Systems Task Force 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 amongst the BACS affiliates (eg corporate users, consumer groups) volunteering attendees to assist BPSL with investigating potential innovations and educational opportunities relating to BACS. Membership has increased steadily over the year to 29, and is expected to grow in 2007. 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 broadly to observe Core

Principle IX. Establishing a mechanism to deal with risks brought to the system by an existing member with deteriorating financial strength would strengthen observance.

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

The governance arrangements of BPSL are clear and effective in relation to the needs of members. Control over and responsibility for management of the system ultimately rests with the BPSL 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 BPSL, its members and Voca is specified through a number of contractual arrangements. The quality of relationship between BPSL and Voca appears sound, the former monitoring the latter's operational performance and broader financial position as a control against risks to payment processing.

BPSL is a member-operated company whose Board has no independent representation, in contrast to best practice in corporate governance for listed companies.⁽¹⁾ Voca has both an independent Chairman of its Board and 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 BPSL. To that end, board representation of external stakeholders could help to ensure the interests of such groups are included in BPSL's decision-making process.

In light of changes to governance arrangements in the UK payment systems, to be introduced by the Payments Council (**Box 4**), BPSL will have 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. In essence therefore, introduction of the Payments Council could go some way to addressing concerns noted in the previous *Oversight Report* about the degree to which BPSL's own objectives accommodate systemic risk considerations, alongside those of other stakeholders.

Because the Payments Council and associated governance changes have yet to be implemented, **the Bank assesses BACS broadly to observe Core Principle X.** The Bank will review this assessment, which is unchanged from last year, in light of experience with the Payments Council and BPSL's relationship with that body. Additionally, extending board representation to external stakeholders would strengthen observance.

(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/lr_comcode2003.pdf).

Annex E 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. Most members of the C&CC have chosen to outsource their processing operations. The following assessment covers all three clearings.

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 inter-member obligations within the C&CC, which takes place on day three of the clearing cycle, is governed by the Settlement Agreement, a formal contract between members and the Cheque and Credit Clearing Company which seeks to remove legal uncertainties about whether these inter-member obligations would be upheld following the insolvency of a member. Additional assurance of the enforceability of the system's default arrangements could be obtained if the C&CC were designated under the UK Settlement Finality Directive regulations (SFD). C&CC plan to apply for designation in early 2007. When the designation process is complete this will strengthen observance of Core Principle I.

All members have agreed to sign up to a *Cheque and Debit Recall Agreement*, which aims to prevent a liquidator seeking to return via the unpaids process 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, and impose credit exposures on surviving members in

respect of dishonoured cheques already credited to their customers' accounts. The *Cheque and Debit Recall Agreement* will reduce legal, credit and operational risk within the system, strengthening the system's observance of Core Principle I when it is implemented in 2007.

C&CC were encouraged to seek legal advice on the existence and extent of conversion risk. Counsel opined that, in the event of collecting bank insolvency, it was highly unlikely that the payee would have a claim against the paying bank for any monies lost after liquidation of the collecting bank had taken place ie that the paying bank would not be subject to conversion risk.

The Bank assesses the C&CC partly to observe Core Principle I. When the *Cheque and Debit Recall Agreements* have been signed and implemented, observance of Core Principle I will be strengthened. Additionally, should the application for designation under the UK SFD regulations be successful, and the Customer Terms & Conditions updated, this would further strengthen observance of 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.

The C&CC have developed a high-value settlement adjustment process to deal with significant errors in settlement figures. This process has been in place in all non-automated⁽¹⁾ clearings since June 2006, thereby mitigating the risk of significant errors in settlement figures increasing settlement risk in the system. This enhancement further strengthens observance of Core Principle II.

Work on the *Settlement Agreement* and the *Liquidity Funding and Collateralisation Agreement* has 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.

(1) Sterling credit, euro debit and non-standard paper (NSP).

The Bank assesses the C&CC 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 members to settle net amounts is clear and the Settlement Agreement makes those obligations enforceable.

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 member insolvency and subsequent failure to settle. 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 on a larger 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.

The C&CCC implemented a new process to deal with the possibility of significant errors in settlement figures in June 2006. The Bank considers this process to be a necessary control against credit and settlement risk. Additionally the completion of the *Cheque and Debit Recall Agreement* will further strengthen observance of Core Principle III.

The Bank assesses the C&CC broadly to observe Core Principle III. Should further controls be introduced to strengthen the LFCA, eliminating the remaining residual liquidity and credit 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 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.

The Bank assesses the C&CC to 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.

The LFCA has established a procedure to ensure timely completion of 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 avoided if BACS and the C&CC had the ability to cap exposures at the level of liquidity committed. The use of debit caps is currently being explored by BACS, but the Bank recognises that there may be significant practical obstacles to placing debit caps 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 could instead define procedures to allocate residual risk. For example, any shortfalls in liquidity could be met by surviving members in proportion to their underlying bilateral net settlement positions in the C&CC *vis-à-vis* the defaulter. This would ensure that, in the event that multilateral net debit positions exceeded the liquidity committed by surviving members, only those exposed to the defaulter would suffer any loss. The Bank has encouraged the C&CCC to consider whether allocation of residual risk on the basis of underlying bilateral settlement positions is a legally robust and practical solution.

The Bank assesses the C&CC broadly to observe Core Principle V. Work to define 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.

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

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 each cheque are sent to members. During the course of 2006 an IBDE upgrade was successfully completed and the overall record of reliability of the network remains high.

IBDE apart, 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. The Bank has encouraged the C&CCC to consider the relationship between the Company, the scheme, and third party suppliers, including perhaps a co-ordinating role in industry-wide projects, or those involving multiple members.

Over time, if the processing model changed, a different relationship structure might be optimal. For example, if further consolidation led to the creation of a single infrastructure provider, a contractual model similar to BACS might be preferred, where the infrastructure provider entered into a service level agreement with both the scheme and also its individual members. This would allow for greater leverage on the supplier, and more transparency between members, the supplier and the scheme as a whole.

The Bank assesses the C&CC broadly to observe Core Principle VII. Defining more clearly the relationship between the Company, the scheme and third-party suppliers, and ensuring that the C&CCC receives adequate assurance of compliance with the system's audit controls would strengthen the system's compliance with 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 C&CC were not assessed against Core Principle VIII in last year's *Oversight Report* as discussions into what improvements

could be made to the current cheque and credit clearings to provide greater efficiency and user benefits had just commenced in October 2005, when the Cheque Working Group (CWG) was established.

The OFT Payment Systems Task Force examined the costs and benefits of, and demand for, change to the current system based on the rapidly declining cheque volumes in the United Kingdom. Significantly, 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 substantially when the new Faster Payments service for phone and Internet payments becomes available in late 2007. In addition, several major retail groups are either trialling not accepting cheques as a payment mechanism at their tills or have stopped taking cheques altogether. Additionally, 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 to implement a 'T plus 2-4-6' (see **Box 5**) proposition by November 2007, as it was deemed easier than accelerating the sterling cheque clearing, which is already relatively highly automated. The main proposed changes are: money deposited into any account will start to earn interest or will count against overdrafts no later than two working days after the cheque is deposited and 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.

The Bank now assesses the C&CC partly to observe Core Principle VIII. Greater observance may be achieved once the 'T plus 2-4-6' proposals have been implemented in 2007.

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.

The outstanding gap in the membership criteria, previously identified in the *Oversight Report*, is a procedure to deal with a settlement member whose credit quality deteriorates to an extent that brings a high level of risk to the multilateral settlement. The C&CCC (working together with BPSL) have recently been considering how to deal with this issue. Arrangements could be established to determine the amount of additional collateral pledged by a member experiencing a rapid deterioration in its credit rating. The C&CC Scheme Governance Steering Committee plans to complete a review of the system rules during 2007, to include consideration of a means of dealing with a member whose credit quality deteriorated to a level that brought additional financial risk to the system.

The Bank assesses the C&CC broadly to observe Core Principle IX. Amendment of the system rules to include criteria to deal with a settlement member whose credit quality has deteriorated to an extent that brought unreasonable financial risk to the clearings would strengthen observance.

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 clearings resting with the Board. The Bank considers the C&CCC's executive to be broadly accountable to the Board. The C&CCC Board is composed entirely of settlement member banks (the Company Manager and the CEO of APACS also attend but do not have a vote). The Board has both the incentives and tools to pursue the interests of the system and its settlement members. The C&CCC Board has now introduced 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 case for independent or further public interest representation on the Board.

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 now invited to attend some operational-orientated 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, but has so far chosen not to exercise these existing audit rights.

Defining more clearly the relationship between the Company, the scheme and third-party suppliers, and ensuring that the C&CCC receives adequate assurance of compliance with the system's audit controls would strengthen the system's compliance with Core Principle X.

In light of changes to governance arrangements in the UK payment systems, to be introduced by the Payments Council (**Box 4**), C&CCC will have 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.

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

Annex F The LINK card scheme

The LINK ATM Scheme (the Scheme) is the United Kingdom's largest ATM network, which 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 LINK Interchange Network Ltd (the Company) provides transaction switching for members of the Scheme, by routing transaction information from the ATM used by the customer to the card issuer's own computer network. The LINK Interchange Network is a for-profit, limited company owned by a subset (22) of the members of the Scheme.

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

All members enter into formal contracts with each other as part of their membership of the Scheme. These contracts specify members' rights and obligations, and commit 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 was designated under the UK settlement finality regulations.

The Bank assesses the Scheme broadly to observe Core Principle I. Designation under the UK settlement finality regulations 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.

System participants incur both credit and liquidity risk through participation in the Scheme. Rules and procedures exist to manage credit and liquidity risk within the system. Parties to the multilateral net settlement are also required to have the tools to manage adequately liquidity and credit risk within the system. For example, card issuer members, who can accrue multilateral net debit positions, are required to monitor their settlement positions.

Procedures apply to 'abnormal' circumstances — circumstances that might prevent the completion of the multilateral net settlement — such as a participant insolvency. The default arrangements preserve multilateral netting in the event of default of a settlement member, enabling participants to understand the risks incurred through participation in the system.

The Bank assesses the Scheme to observe Core Principle II.

CP III. The system should have clearly defined procedures for the management of credit risk and liquidity risk, 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 appropriately manage this risk.

LINK now 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⁾ The Company is developing a new settlement system capable of monitoring intraday participants' settlement

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

positions. This would enable the system to impose debit caps. LINK aims to have this in place first for Faster Payments, and then for the ATM scheme in 2008 Q1. This initiative should equip the Scheme with the tools to manage more effectively credit and liquidity risk within the system.

The Bank assesses the Scheme broadly to observe Core Principle III. Successful completion of work already under way to introduce debit cap functionality 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.

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.

For historical reasons a small group of Scheme participants are also members of an organisation known as FTS. FTS members connect to LINK via a third party. FTS members 'sub-settle' among themselves and submit a single multilateral net settlement amount to the main LINK settlement. Hence the main LINK settlement cannot complete until FTS members have settled among themselves and the FTS account is funded. This arrangement complicates the system's settlement procedures and can lead to settlement delays. Measures taken by LINK to discourage late pay-ins by members do not appear to have been as effective in reducing the number of late pay-ins by FTS members as for other settlement members. LINK has agreement from members to introduce minimum and compulsory balances on settlement accounts held at the Bank, which may mitigate the risk to timely settlement posed by FTS. The Scheme has yet to impose this.

Almost all of the settlement delays in the second half of the year were the result of late funding by FTS. The Bank has encouraged the Scheme to review the current settlement arrangements for FTS. FTS Limited and its Members are now taking action to address this potential weak point in LINK settlement procedures, looking in particular at moving to an arrangement where FTS members take part directly in the

main settlement. LINK has agreement from members to require minimum and compulsory balances on settlement accounts held at the Bank if necessary. This may mitigate the risk to timely settlement posed by FTS if this action is unsuccessful in preventing further delays.

Settlement would also be delayed in the event of a participant insolvency. Under the procedures in place in the event of the failure of a participant in 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, and these risks are not sufficient to prevent the system from observing broadly this Core Principle.

The Bank continues to assess the Scheme broadly to observe Core Principle IV. Successful implementation of measures to ensure prompt pay-ins by FTS members in a net debit position 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 LINK'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 of England.

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 is good; apart from a single incident in September which meant that some

members did not have access to the switch for up to 26 minutes, the Company fully maintained availability of the switch for routing transactions for the rest of 2006. The Company's service obligations to the Scheme are contractualised in separate service level agreements between the Company 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 the Company to account for the quality of processing services provided.

The LINK risk control framework provides a structured process through which risks are identified by function. It was designed by the LINK Interchange Network Ltd, and the Scheme is considered as one 'function' within this framework. The risk control process is reviewed independently of day-to-day operations by the LINK Interchange Network Ltd senior management, and the overall framework is subject to independent external audit. The Company Board has responsibility for determining the overall risk appetite of the framework. While it is logical for the Company to identify and manage those operational risks related to Company processes, there would be merit in the Scheme developing more formally its own risk framework to manage Scheme-specific operational risks. The Network Members Council identified risk as an area for review in 2006, while Company and Scheme undertook a number of initiatives that have enhanced LINK's overall business continuity planning. These included the implementation of a new crisis management framework and updating of existing business recovery plans, the creation of specific jobs dedicated to business continuity planning and compliance, the establishment of an Avian Flu Action Team, and testing, including desktop exercises involving a range of staff at both senior management and working level. Business continuity arrangements are tested regularly and appear to be extensive.

The controls underlying the system's risk management framework for managing operational risk are determined by the LINK Interchange Network Ltd and appear wide-ranging and generally well documented. The system maintains standards — determined by the Scheme and Company — 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 the LINK Interchange Network Ltd increased from 972 million to 2.7 billion between 2000 and 2006. However, annual transaction growth, (growth

in transaction volumes), has been decelerating from 31.5% to 5.9% over the same period.

The governance arrangements of the LINK Interchange Network Ltd set out contractual separation of the Scheme from the Company (see Core Principle X). The separation of the Scheme from the Company, combined with the Scheme's rules strengthens the Company's degree of autonomy to innovate outside ATM Scheme switching and settlement.

Card issuers pay a switching and settlement fee to the LINK Interchange Network Ltd for the cost of routing transaction information from the ATM used by the customer to the card issuer's own computer network. 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 fixed fraction of the multilateral interchange fee is applicable to non-cash withdrawal transactions, such as account balance enquiries. In December 2006, the LINK Scheme announced agreement in a Working Group set up by HM Treasury to 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 considered there to be a risk of financial exclusion.

Participants may also impose charges on their customers. Customer charging is outside of the Scheme rules — determined by individual system participants who are free to compete in this market — and is therefore not considered in this assessment.

While it is not straightforward to assess the efficiency of a payment system, **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 in theory 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 and Company means that the LINK Interchange Network Ltd has now met all of the recommendations of the LINK Access and Governance Working Group⁽¹⁾ that related to the relationship between scheme and infrastructure. The Company 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 LINK Scheme Director and the CEO of the LINK Company also attend the NMC, although neither has the right to vote. The NMC has the tools and incentives to pursue the interests of both the Scheme and its members. The Scheme has a Standing Committee on Consumer Issues, 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 will be 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 attends the Working Group as an observer.

Annex G UK Maestro

UK Maestro is one of the largest debit card schemes in the United Kingdom. It enables its Licensees' customers (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 Domestic Maestro rules ('the Rules'), as set by S2, appear to provide an adequate contractual basis for the system's operation in most areas. UK Domestic 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 Mark 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 Principal Licensee default, 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 the UK Maestro scheme 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 (Licensees who do not access the scheme through another Licensee) 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

(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.

from Affiliate Licensees that the Principal Licensee is responsible for meeting. However, the Rules do not define a point of final settlement (the commentary at Core Principle I provides further details on this).

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 the UK Maestro scheme 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, HSBC. In the event of a Principal Licensee defaulting, MCE uses first its overdraft facility at HSBC, 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 observes UK Maestro broadly to 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 \$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 \$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.

Settlement is performed on a multilateral net basis over accounts held at HSBC. While this is not a central bank asset, HSBC is a highly credit rated institution. In addition, positive balances held at HSBC 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. Indeed, as stated in the Bank's settlement accounts policy,⁽¹⁾ the Bank would not seek to become settlement agent for systems such as UK Maestro.

(1) Bank of England (2002): *Bank of England Settlement Accounts*, available at: www.bankofengland.co.uk/financialstability/paymentssettlementsystems/pdf/boesettl_eaccs021128.pdf

The Bank assesses UK Maestro broadly to 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, and so does not encourage this.

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 inter-member 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.

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 2005, there were approximately 6.3 billion debit card transactions, including 1.55 billion using the Maestro scheme. Maestro (and formerly Switch) volumes have recorded consistent significant growth over the past decade, although both volumes and values processed declined slightly in 2005. Where on-line authorisation of a payment is conducted, the response time of

the MCE authorisation system is in nearly all cases less than a second.⁽¹⁾ 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.

While it is not straightforward to assess the efficiency of a payment system, **the Bank assesses the UK Maestro 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.

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 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.

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 between members of the scheme. The Rules also state the

(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.

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 charges.

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 broadly to observe Core Principle IX. However, the Bank sees little benefit from a risk reduction perspective in UK Maestro seeking to observe more fully Core Principle IX, which could be achieved through having a publicly disclosed set of 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 the new rules do not discriminate against International Maestro cardholders, damage the Maestro mark, 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, this voting rights structure, and 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 broadly to 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.

